

THE CARIBBEAN AND ALASKA CRUISES WITH DR. ZAHI HAWASS



Western Caribbean from Miami: November 23 – 30, 2019
Eastern Caribbean from San Juan: December 1 – 8, 2019
Alaska from Seattle: July 19 – 26, 2020

For the first time ever, the living legend of archaeology joins our guests at sea!
Take a cruise with Dr. Zahi Hawass, the most famous Egyptologist in the world, one of Time's
100 Most Influential People and Egypt's former Minister of Antiquities.

Dr. Zahi Hawass: *What is special about these cruises? We bring the pharaohs to Alaska and the Caribbean! You will enjoy the cruise during the day and in the evening I will bring you the magic of Ancient Egypt.*

I will tell you about the most important discoveries I have made in the last 20 years. Find out more about King Tut's secrets and how he died, the mysteries of the Sphinx and pyramids. Join me and you will never forget it!

For more information visit:
WWW.ARCHAEOCRUISES.COM



contact@archaeologicalpaths.com
US phone: 917-719-1974

VISIT...

LANZAROTE
Caliente.COM

Volcano Survivors of Ancient Ecuador

ARCHAEOLOGY

archaeology.org

A publication of the Archaeological Institute of America

March/April 2019

Ice Age Art's Lasting Legacy

Cowboys on the High Plains

Searching for Sicily's Lost Theater

Egyptian City of the Sun

PLUS:

Sri Lanka Spice Trade

Celtic Trophy Skulls

Taming Wild Boars

Rise of the Chicken People

THE NEXT GREAT ITALIAN MASTERPIECE

The Aria Bracelet is an impeccable work of art with a price unmatched by any in its class.

Raffinato™
Italy

Da Vinci's Mona Lisa, David by Michelangelo, Madame Butterfly by Puccini—Italy has produced some of the world's greatest masterpieces. And, it's no secret it is the epicenter of the best metalworking on earth. Which is why we sought out the best artisans to ever melt precious metals to create yet another great Italian masterpiece.. For over fifty years Pietro Ferrini and Rodolfo Grotti have created unsurpassed artisan jewelry that combines age-old Etruscan metalsmithing techniques with innovative design. Today, we bring their talents to America.

The **Aria Bracelet** is their latest masterpiece. **And, you can own it for under \$50!**

Each bracelet is meticulously made by hand from .925 sterling silver drenched in 18K Italian yellow gold and celebrates the traditional woven Byzantine design—an intricate array of woven links that forms a flexible and elegant drape. We also offer the Aria Bracelet in 14K yellow gold for a price that will make you say “fantastico”.

The difference between priceless & overpriced. While shopping for bracelets, I spotted similar Byzantine bracelets with a big designer name for twice what they should charge. Ridiculous. It wasn't Italian made. It wasn't near as nice. High-end design shouldn't carry a high price just because of a big name designer name up-charge.

No questions asked, 30-day money back guarantee. We want you glowing with satisfaction.

Masterpiece, not mass produced. Because each bracelet is handmade in Italy—taking months to create—we only have a select number available. Don't miss this opportunity to own a piece of impeccable Italian-made jewelry for a truly amazing price. Call today!

• Made in Arezzo, Italy • 18K gold over .925 sterling silver • 7.5" bracelet; lobster clasp

The classic Byzantine chain pattern has stood the test of time for over 2,500 years

To show exquisite details, bracelet shown is not exact size.

What Clients Are Saying
About Raffinato™ Gold Jewelry —



“Beautiful piece... LOTS of compliments!”

— F., Columbus, OH

18K Gold-Finished Sterling Silver Aria Bracelet 295

Stunningly affordable at **\$49 Save \$246**

14K Yellow Gold Aria Bracelet \$795

Stunningly well-priced at **\$495 Save \$300**

Call today. There's never been a better time to let your elegance shine. 1-888-444-5949

Offer Code: RFL146-01. You must use the offer code to get our special price.

Raffinato™

14101 Southcross Drive W., Ste 155, Dept. RFL146-01, Burnsville, Minnesota 55337 www.raffinatoitaly.com

A collection of impeccable design & craftsmanship from Italy.

CONTENTS



50 Stone blocks belonging to Agrigento's ancient theater

FEATURES

- 26 **EGYPT'S ETERNAL CITY**
Once the most sacred site on the Nile, Heliopolis was all but forgotten until archaeologists returned to save it from disappearing forever

BY ANDREW CURRY

- 34 **A MEMORY OF HOME**
A volcanic eruption forced the people of Ecuador's Jama Valley to abandon their homeland. What brought them back?

BY MARLEY BROWN

- 38 **BETWEEN TWO EMPIRES**
Exploring the extensive remains of a short-lived city that flourished during a turbulent era of ancient Near Eastern history

BY SARA TOTH STUB

- 44 **ART AT THE END OF THE ICE AGE**
Newly discovered engraved stone tablets are evidence that a prehistoric tradition endured long after it was thought to have vanished

BY MEGAN GANNON

- 50 **SICILY'S LOST THEATER**
Archaeologists resume the search for the home of drama in a majestic Greek sanctuary

BY MARCO MEROLA

Cover: An Ice Age depiction of an aurochs, an extinct species of cattle, at Lascaux Cave in southwestern France
PHOTO: PICTURES FROM HISTORY/BRIDGEMAN ART LIBRARY

Breakthrough technology converts phone calls to captions.

New amplified phone lets you hear AND see the conversation.

No
Contract
No
Monthly Fee

The Hamilton® CapTel® Captioned Telephone converts phone conversations to easy-to-read captions for individuals with hearing loss.

Do you get discouraged when you hear your telephone ring? Do you avoid using your phone because hearing difficulties make it hard to understand the person on the other end of the line? For many Americans the telephone conversation – once an important part of everyday life – has become a thing of the past. Because they can't understand what is said to them on the phone, they're often cut off from friends, family, doctors and caregivers. Now, thanks to innovative technology there is finally a better way.

A simple idea... made possible with sophisticated technology. If you have trouble understanding a call, captioned telephone can change your life. During a phone call the words spoken to you appear on the phone's screen – similar to closed captioning on TV. So when you make or receive a call, the words spoken to you are not only amplified by the phone, but scroll across the phone so you can listen while reading what's said to you. Each call is routed through a call center, where computer technology – aided by a live representative – generates voice-to-text translations. The captioning is real-time, accurate and readable. Your conversation is private. Internet Protocol Captioned Telephone Service (IP CTS) is regulated and funded by the Federal Communications Commission (FCC) and is designed exclusively for individuals with hearing loss. To learn more, visit www.fcc.gov. The Hamilton CapTel phone

requires telephone service and high-speed Internet access. WiFi Capable. Callers do not need special equipment or a captioned telephone in order to speak with you.

Finally... a phone you can use again. The Hamilton CapTel phone is also packed with features to help make phone calls easier. The keypad has large, easy to use buttons. You get adjustable volume amplification along with the ability to save captions for review later. It even has an answering machine that provides you with the captions of each message.



SEE what
you've been
missing!



**NEW
Wide Screen
Display**

**HAMILTON
CAPTEL**

"For years I avoided phone calls because I couldn't understand the caller... now I don't miss a thing!"

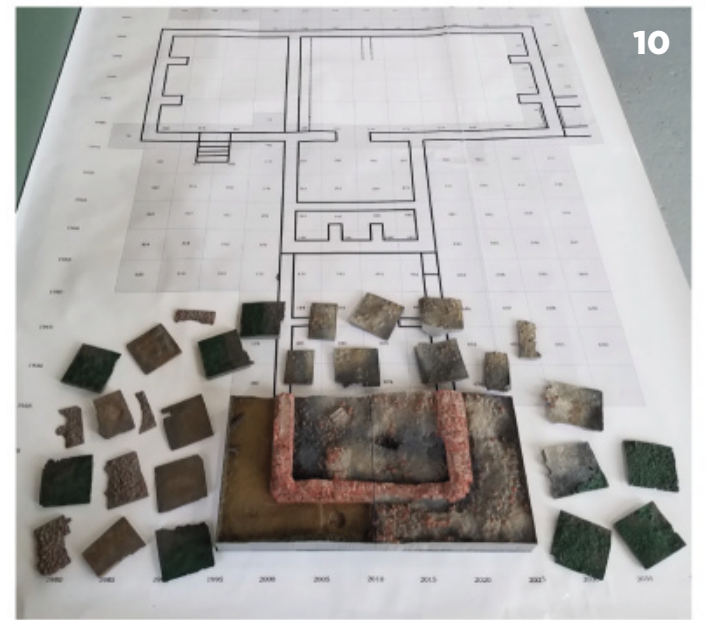
See for yourself with our exclusive home trial. Try a captioned telephone in your own home and if you are not completely amazed, simply return it within 60-days for a refund of the product purchase price. It even comes with a 5-year warranty.

Captioned Telephone
Call now for our special introductory price!

Call now Toll-Free
1-888-749-4786

Please mention promotion code 111250.

The Captioned Telephone is intended for use by people with hearing loss. In purchasing a Captioned Telephone, you acknowledge that it will be used by someone who cannot hear well over a traditional phone. Hamilton is a registered trademark of Nedelco, Inc. d/b/a Hamilton Telecommunications. CapTel is a registered trademark of Ultratec, Inc.



DEPARTMENTS

4 EDITOR'S LETTER

6 FROM THE PRESIDENT

8 LETTERS

World War I reality check, a mineral misconception, and the ancient chocolate trade

9 FROM THE TRENCHES

3-D printing a Virginia plantation, Viking horse burials, dawn of the chicken era, and boots for the medieval worker

24 WORLD ROUNDUP

English food culture, Japanese weevils, the Sri Lankan spice trade, and surviving the Tibetan Plateau

55 LETTER FROM TEXAS

Excavations at a ranch in the southern High Plains show how generations of people adapted to an iconic Western landscape

BY ERIC A. POWELL

68 ARTIFACT

A lady's circle of influence

ARCHAEOLOGY.ORG

■ **MORE FROM THE ISSUE** For a slideshow showing how the Hellenistic and Roman residents of Agrigento lived, go to archaeology.org/agrigento.

■ **ARCHAEOLOGICAL NEWS** Get daily headlines from around the world, and sign up for our e-Update.

■ **FOLLOW US**



■ **INTERACTIVE DIGS** Track ongoing work at interactivedigs.com.

THE MEANING OF HOME

Each time we put together a new issue of the magazine, we are struck that people separated by distances of thousands of miles and by many millennia share markedly similar experiences. In this issue, you will read several stories of the very different ways people across space and time have dealt with abandoning their homes and sacred spaces.



It may seem improbable that one of ancient Egypt's most famous sites would be not only abandoned, but also almost entirely forgotten. That is exactly what happened to Heliopolis, the City of the Sun. In "Egypt's Eternal City," contributing editor Andrew Curry shares the story of a holy sanctuary filled with temples, obelisks, and monuments honoring the full panoply of Egyptian deities—most notably the creator god Atum and the sun god Ra—and generation upon generation of pharaohs. After 2,000 years of continuous intensive use, the city was abandoned. It was plundered for building materials in the Middle Ages and then buried under refuse and floodwaters in the modern era. Abandoned no longer, the site is now the locus of Cairo's building boom, threatening the survival of its ancient remains. What will happen to Heliopolis in the future is unclear.

War and political instability can also result in the abandonment of a site. Jerusalem-based journalist Sara Toth Stub shares the tale of a once-flourishing city high on a Turkish mountaintop that, despite ample wealth, a sophisticated city plan, and a cosmopolitan culture of artisans and others drawn from around the region, nevertheless survived for only a century. Caught up in the chaos resulting from the collapse of the mighty Assyrian Empire, the people of Kerkenes were forced to abandon their city to a raging fire that seems to have been deliberately set to drive them from their home.

Natural disasters, too, can be the impetus for abandonment. Multiple eruptions of the Guagua Pichincha volcano in coastal Ecuador over thousands of years pushed successive pre-Columbian cultures out of the Jama Valley. Two of these cultures, the Valdivia and Chorrera, left and never returned. But for the later Jama-Coaque culture, as associate editor Marley Brown tells us in "A Memory of Home," the pull of the familiar was strong. After 300 years, the descendants of the original Jama-Coaque returned to the valley. We think that is something everyone can understand.

Jarrett A. Lobell
Editor in Chief

ARCHAEOLOGY

Editor in Chief

Jarrett A. Lobell

Deputy Editor

Eric A. Powell

Senior Editor

Daniel Weiss

Associate Editor

Marley Brown

Editorial Assistant

Malin Grunberg Banyasz

Creative Director

Richard Bleiweiss

Contributing Editors

Roger Atwood, Paul Bahn, Bob Brier, Karen Coates, Andrew Curry, Blake Edgar, Brian Fagan, David Freidel, Tom Gidwitz, Andrew Lawler, Stephen H. Lekson, Jerald T. Milanich, Heather Pringle, Kate Ravilious, Neil Asher Silberman, Julian Smith, Nikhil Swaminathan, Jason Urbanus, Claudia Valentino, Zach Zorich

Correspondents

Athens: Yannis N. Stavrakakis
Islamabad: Massoud Ansari
Israel: Mati Milstein
Naples: Marco Merola
Paris: Bernadette Arnaud
Rome: Roberto Bartoloni, Giovanni Lattanzi
Washington, D.C.: Sandra Scham

Publisher

Kevin Quinlan

Director of Circulation and Fulfillment

Kevin Mullen

Director of Integrated Sales

Gerry Moss

Account Manager

Karina Casines

Account Manager

Jeff Posner

PRI Communications Inc.
Jeff@pricommunicationsinc.com
516-594-2820 x11

Circulation Consultant

Greg Wolfe, NPS Media Group

Newsstand Consultant

T.J. Montilli
NPS Media Group

Office Manager

Malin Grunberg Banyasz

For production questions
contact production@archaeology.org

Editorial Advisory Board

James P. Delgado, Ellen Herscher, Ronald Hicks, Jean-Jacques Hublin, Mark Lehner, Roderick J. McIntosh, Susan Pollock, Kenneth B. Tankersley

ARCHAEOLOGY MAGAZINE

36-36 33rd Street, Long Island City, NY 11106
tel 718-472-3050 • fax 718-472-3051

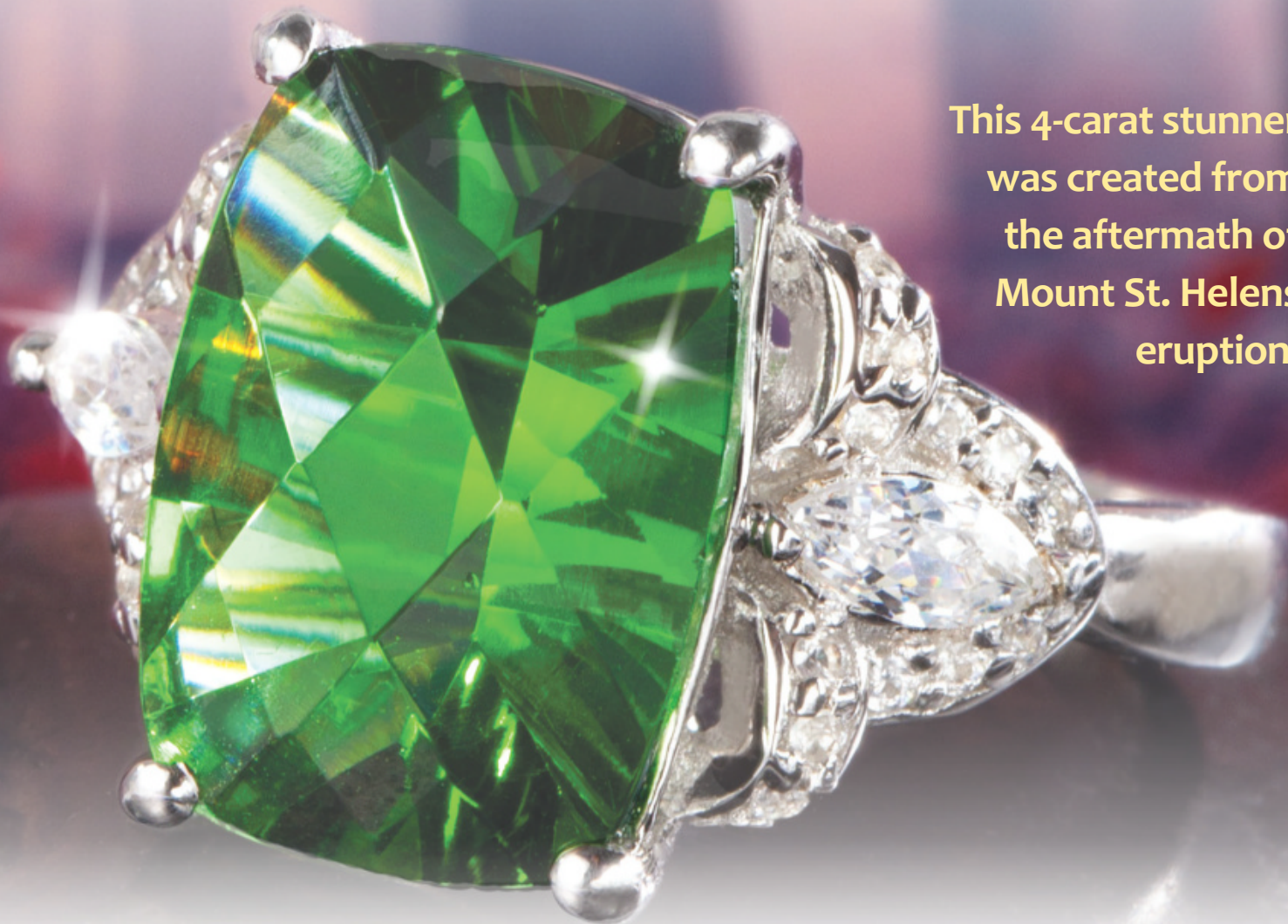
Subscription questions and address changes should be sent to Archaeology, Subscription Services, P.O. Box 433091 Palm Coast, FL 32143 toll free (877) ARKY-SUB (275-9782) or subscriptions@archaeology.org

What our clients are saying about Stauer Helenite jewelry:

"My wife received more compliments on this stone on the first day she wore it than any other piece of jewelry I've ever given her."

— J. from Orlando, FL

This 4-carat stunner was created from the aftermath of Mount St. Helens eruption!



FAMOUS VOLCANO HAS STRANGE EFFECT ON WOMEN

Man and nature collaborate to create a glamorous green ring guaranteed to rock her world! Own it today for **ONLY \$99 plus FREE studs with ring purchase!**

On May 18, 1980, Mount St. Helens erupted, sending a column of ash and smoke 80,000 feet into the atmosphere. From that chaos, something beautiful emerged—our spectacular **Spirit Lake Helenite Ring**.

Created from the superheated volcanic rock dust of the historic Mount St. Helens eruption, helenite has become the green stone of choice for jewelry and fashion designers worldwide. Helenite's vivid color and immaculate clarity rivals mined emeralds that can sell for as much as \$3,000 per carat. Today you can wear this 4-carat stunner for **only \$99!**

**EXCLUSIVE
FREE**

Helenite Studs

—a \$129 value—
with purchase of
Spirit Lake Ring



Our exclusive design highlights the visually stunning stone with a concave cut set in .925 sterling silver loaded with brilliant white, lab-created DiamondAura®. The classic pairing of colors in a vintage-inspired setting makes for a statement ring that's simply impossible to ignore!

Beauty from the beast. Also known as "America's Emerald," helenite is not an emerald at all, but a brighter and clearer green stone that gem cutters can facet into

spectacular large carat weight jewelry. "It's just recently that luxury jewelers have fallen in love with helenite," says James Fent, GIA Graduate Gemologist. "Clear green color in a stone this size is rarely found in emeralds but helenite has come to the rescue."

Your satisfaction is 100% guaranteed. Bring home the **Spirit Lake Helenite Ring** and see for yourself. If you are not completely blown away by the exceptional beauty of this rare American stone, simply return the ring within 30 days for a full refund of the item price. It's that simple. But we're betting that once you slide this gorgeous green beauty on your finger, it will take a force of nature to get you two apart!

Spirit Lake Helenite Ring

Total value with FREE studs ~~\$478*~~

Now, Offer Code Price Only \$99 + S&P Save \$379!

1-800-333-2045

Your Offer Code: SLR626-02

You must use this offer code to get our special price.

Stauer®



14101 Southcross Drive W., Ste 155,
Dept. SLR626-02,
Burnsville, Minnesota 55337 www.stauer.com

* Special price only for customers using the offer code versus the price on Stauer.com without your offer code.

4 carat Helenite center stone • Lab-created white DiamondAura® accents • .925 sterling silver setting • Whole ring sizes 5–10

Stauer... Afford the Extraordinary®

FROM THE PRESIDENT

CLOTHES MAKE THE MAN OR WOMAN

In my letter for the preceding issue of *ARCHAEOLOGY*, I considered the typical diet of Galilean villagers in the time of Jesus. Soon after, a documentary television producer asked me about ancient Jewish clothing, and I started thinking about what villagers like Jesus would have worn, and how their choices would have differed from those we make today. In the modern world, many of us dress for the occasion—workplace versus



Fresco, Dura Europos, Syria

casual attire, gym clothes versus black tie. In the Roman East, everyone wore the same two basic articles of clothing: a tunic and a mantle. Although tunics and mantles were universal, variations in their length, color, fabric, and decorative details clearly signaled the wearer's gender, marital and socioeconomic status, and sometimes even their occupation.

Clothing in Roman Palestine was generally made from sheep or goat's wool, although the Gospel accounts describe John the Baptist's tunic as fashioned from coarse and scratchy camel's wool. Male members of the sect called the Essenes, who deposited the Dead Sea Scrolls in the caves around Qumran, wore linen garments as well as a loincloth, as did the priests in Jerusalem's temple. Most people, however, wore no undergarments.

The tunic was a large rectangular sheet folded over (or two separate sheets of cloth, one for the front and one for the back) and sewn along the sides with openings at the top for the head and on the sides for the arms. It could have sleeves or not. Soldiers and slaves wore knee-length tunics to leave their legs free, whereas priests wore ankle-length tunics for ceremonial purposes and women wore this longer variety for modesty's sake. Women's clothing tended to be more colorful than men's, and wealthy women indulged in elaborate hairstyles, makeup, and costly jewelry. For added mobility or when working, tunic-wearers could tie a belt made of cloth, leather, or rope to hitch up the garment. Two dark stripes called *clavi* running the length of the garment indicated the wearer's status—the wider the stripe, the higher the status.

A mantle was a large rectangular sheet of cloth worn over the tunic. It was draped over the left shoulder with the ends wrapped around the wearer's left arm, leaving the right hand free. Some Jewish men may have had fringes attached to the ends of their mantles, following biblical law. The modern tallith, or Jewish prayer shawl, derives from these fringed mantles. Sometimes, the corners of the mantle were marked with dark notch-shaped designs called *gammadia* because they resemble the Greek letter gamma. Roman citizens wore a mantle with a curved hem, the toga. Although the range of garments first-century inhabitants of Palestine wore was far more limited than our own, the subtle variations in their clothes were far more meaningful as indicators of status.

Jodi Magness

President, Archaeological Institute of America

ARCHAEOLOGICAL INSTITUTE of AMERICA



OFFICERS

President

Jodi Magness

First Vice President

Laetitia La Follette

Vice President for Outreach and Education

Ethel Scully

Vice President for Research and Academic Affairs

Thomas Tartaron

Vice President for Cultural Heritage

Elizabeth S. Greene

Vice President for Societies

Connie Rodriguez

Treasurer

David Seigle

Executive Director

Ann Benbow

Chief Operating Officer

Kevin Quinlan

GOVERNING BOARD

Elie Abemayor

David Adam

Deborah Arnold

Jeanne McKenzie Bailey

David Boochever

Thomas Carpenter

Jane Carter, ex officio

Arthur Cassanos

Larry Cripe

Julie Herzig Desnick

Joshua Gates

Elizabeth M. Greene

James Jansson

Lisa Kealhofer

Morag Kersel

Mark Lawall

Thomas Levy

Gary Linn

Jarrett A. Lobell, ex officio

Kathleen Lynch

Tina Mayland

H. Bruce McEver

Barbara Meyer

Sarah Parcak

A. Phokion Potamianos

Laura Rich

Kim Shelton

Thomas Sienkewic

Monica L. Smith

Maria Vecchiotti

Michael Wiseman

John Yarmick

Past President

Andrew Moore

Trustees Emeriti

Brian Heidtke

Norma Kershaw

Charles S. La Follette

Legal Counsel

Mitchell Eitel, Esq.

Sullivan & Cromwell, LLP

ARCHAEOLOGICAL INSTITUTE of AMERICA

44 Beacon Street • Boston, MA 02108

archaeological.org

Only \$29!

You would be hard pressed to find a timepiece of this outstanding quality and precision at this price.

CLIENTS LOVE THE STAUER WATCH...



"The quality of their watches is equal to many that can go for ten times the price or more."

— Jeff from McKinney, TX

IT'S ENOUGH TO MAKE YOU BLUE IN THE FACE

Time to take a stand against overpriced watches with the Stauer Urban Blue, **now only \$29.**

You need a new watch...the one you are wearing was made when Nixon was in office, but extravagantly-priced watches that add zeros just because of a high falootin' name are an insult to your logic. Why shell out big money so some foreign company can sponsor another yacht race? It's time to put an end to such madness. It's absolutely possible to have the highest quality, precision classic timepiece without the high and mighty price tag. Case in point: The Stauer *Urban Blue*.

Packed with high-end watch performance and style, minus the high-end price tag. It's everything a high-end watch should be: Sturdy stainless steel and genuine leather construction. Precision timing that's accurate to four seconds a day—that's more precise than a 27-jewel automatic watch priced at over \$6,000. And, good looking—with simple, clean lines and a striking metallic blue face.

"Blue watches are one of the growing style trends seen in the watch world in the past few years"—WATCHTIME®

Your great escape from the over-priced watch craze.

At Stauer, we go directly to the source (cutting out the middleman), and engineer our own watch designs. This means we can offer a top quality timepiece that happens to only cost the same as two well-made cocktails at your favorite bar. So, while we're busy revolutionizing the

watch industry to bring you more real value, you can take your own stand against overpriced watches with the *Urban Blue*.

Your satisfaction is 100% guaranteed. Wear the *Urban Blue* for 30 days. If you're not convinced that you achieved excellence for less, send it back for a refund of the item price. The *Urban Blue* is one of our fastest sellers. It takes six months to engineer this watch so don't wait. Take a stand against overpriced watches in impeccable style.

Limited to the first 1900 responders to this ad only. Don't miss out...call today!

Stauer Urban Blue Watch ~~-\$199†~~

Offer Code Price **\$29** + S&P **Save \$170**

1-800-333-2045

Your Insider Offer Code: UBW433-02

You must use this insider offer code to get our special price.

Stauer®

14101 Southcross Drive W.,
Ste 155, Dept. UBW433-02
Burnsville, Minnesota 55337
www.stauer.com



† Special price only for customers using the offer code versus the price on Stauer.com without your offer code.

Precision movement • Stainless steel caseback and crown • Cotswold® mineral crystal • Date window
• Water resistant to 3 ATM • Genuine leather band fits wrists 6 ¾"–8 ¾"

Stauer... *Afford the Extraordinary.®*

FROM OUR READERS

SAN DIEGO'S LEGACY

Jarrett A. Lobell's article "What Sank *San Diego*?" (January/February 2019) rightly commemorates a little-known but significant event of WWI. After spending my career at the Naval Undersea Warfare Center, retirement has allowed me time to study the historical significance of submarine and antisubmarine technologies. The fantasy of submarine warfare portrayed by Jules Verne's *Twenty Thousand Leagues Under the Sea* became a reality during the opening months of WWI when Germany's *U-9* torpedoed and sank three British warships in the North Sea. With the arrival off the U.S. coast in July 1918 of *U-156*, the second of five U-cruisers to cross the Atlantic, naval warfare would never be the same. The loss of *San Diego* brought that reality to America. In a postwar interview, Frederick Körner, an officer aboard *U-151*, which laid mines at the entrance to the Chesapeake and Delaware Bays, spoke these prophetic words: "We had shown a skeptical world that even the wide expanse of the Atlantic was not enough to keep us from a super-raid to

the coast of far-off America. To those who can see into the future, surely this is a warning of what later wars may bring."

Roy R. Manstan
East Haddam, CT

A MISUNDERSTOOD MINERAL

In response to Richard L. Burger's informative letter regarding cinnabar ("Toxic Color," January/February 2019), I would like to share an additional observation about the mineral cinnabar, a common ore of mercury. I completely agree with Burger's statement that "the toxicity of cinnabar is actually low, even when inhaled." His letter nicely hints at the widespread fear in our culture of *anything* containing mercury. An example: While covering the subject of mining history in my university-level historical geography courses, I would pass around the classroom various ore specimens from my collection, including one featuring bright red crystallized cinnabar on grayish limestone. Despite my assuring the students that this cinnabar specimen was harmless, most of them were extremely wary of it, quickly passing it to the next student. Those who did examine it tended to use a piece of notebook paper or a handkerchief as a makeshift glove to avoid direct contact.

Richard Francaviglia
Professor Emeritus
Willamette University
Salem, OR



THE AGE OF CHOCOLATE

In "Ancient Amazonian Chocolatiers" (January/February 2019) by Zach Zorich, two stirrup bottles purported to contain cacao residue are pictured. The implication I could draw from the article is that the stirrup bottles are also 5,300 years old. Is it the author's intention to imply that the stirrup bottles are as old as the apparent discovery about the use of chocolate (cacao)? Or are the bottles much more recent, but also contain chocolate residue?

Ben Gooden
Fort Lauderdale, FL

Zach Zorich replies:

The researchers tested several pieces of pottery for cacao residue. The oldest sherd that had cacao residue came from a ceramic vessel that was 5,450–5,300 years old. The pictured stirrup bottles both contained cacao residue, but they are dated to about 4,000 years ago.

ARCHAEOLOGY welcomes mail from readers. Please address your comments to ARCHAEOLOGY, 36-36 33rd Street, Long Island City, NY 11106, fax 718-472-3051, or e-mail letters@archaeology.org. The editors reserve the right to edit submitted material. Volume precludes our acknowledging individual letters.



Magazine Publishers of America

ARCHAEOLOGY (ISSN 0003-8113) is published bimonthly for \$29.95 by the Archaeological Institute of America, 36-36 33rd Street, Long Island City, NY 11106. Periodicals postage paid at Long Island City, NY, and additional mailing offices. POSTMASTER: Send address changes to Archaeology, P.O. 433091, Palm Coast, FL 32143.

Subscriptions should be addressed to Archaeology, Subscription Services, P.O. 433091, Palm Coast, FL 32143, toll-free (877) ARKY-SUB (275-9782), subscription@archaeology.org. \$29.95 per volume. Single numbers, \$5.99. Foreign

and Canadian subscriptions, \$44.95; includes all government taxes (130277692-RT). Canadian Publication Agreement #1373161. Allow six weeks for processing new subscriptions. Send manuscripts and books for review to 36-36 33rd Street, Long Island City, NY 11106 or editorial@archaeology.org. All manuscripts are reviewed by experts. Advertisements should be sent to the Advertising Director, 36-36 33rd Street, Long Island City, NY 11106, (718) 472-3050, advertising@archaeology.org. We are not responsible for unsolicited manuscripts and photographs. For subscription problems please call (877) 275-9782; AIA members with subscription problems should call the membership office at (857) 305-9350. All rights reserved. Printed in USA. The views and opinions expressed do not necessarily reflect the policy of the AIA or ARCHAEOLOGY.

©2019 The Archaeological Institute of America

FAIRFIELD'S REBIRTH IN 3-D

At the time it was completed in 1694, southeastern Virginia's Fairfield Plantation was one of the largest and most architecturally innovative houses in the American colonies. Its distinctive features, including triple diamond-stack chimneys, hipped roof, and large, rectangular sash windows, made Fairfield "the most sophisticated classical house built in British North America to that date," according to historian Cary Carson of the College of William and Mary. The 15,000-square-foot manor house would be home to generations of the Burwell family, one of eighteenth-century Virginia's principal landowners. Two Burwells became members of the Governor's Council, the upper house of the Colonial General Assembly, and one was an acting governor. Fairfield was also home to hundreds of enslaved people who planted and harvested the tobacco that supported the region's economy. From 1787 to 1816, the property was owned by Col. Robert Thruston, a member of a prominent Virginia merchant-planter family, and thereafter it was occupied by several generations of African-American tenant farmers.

In 1897, a massive fire gutted the main house, which, at the time, belonged to an African-American woman whose name is unknown. After the fire, the house was torn down and the brick was sold or used to build nearby homes. Much of the cellar filled up with brick rubble and organic debris, sealing inside the burned wood and other artifacts that had fallen in at the time of the house's destruction. A further century of neglect—interrupted only by an excavation in the 1960s—left what remained of Fairfield in ruins, with little

hope for scholars to ever understand its story.

Now, thanks to an innovative 3-D printing project, archaeologists have the chance to learn more. The Fairfield Foundation was established in 2000 to support archaeological research at the plantation and in the surrounding region. Over the course of the last two decades, foundation archaeologists Dave Brown and Thane Harpole have excavated the manor house and unearthed artifacts including fragments of wine bottles and 30 seals that identify more than a century of Fairfield's owners, as well as structural remains of at least 14 courses of its foundations and evidence of a cellar entrance that suggests the location of the original kitchen.

Building on these discoveries, foundation digital curator Ashley McCuiston is now leading a project to create a 3-D printed model that will accelerate the process of recording archaeological data and archive every surface of Fairfield, revealing details that have not been seen for centuries. To make the model, a camera mounted on a drone takes thousands of images of the excavation area. As each layer of soil

Fairfield Plantation manor house, east facade, July 1891



FROM THE TRENCHES

is removed, the drone captures another set of images. These images are used to generate digital models of individual excavated layers, which are then printed in 3-D. The result is a plastic replica that easily fits atop a dining room table. “The part of the 3-D printing project that really captured my interest is that we’re doing it with a level of accuracy that no one has before. That’s something we’ve struggled with for a long time,” Harpole says. “Archaeology is destructive, so how do we get a perfect image of what we’ve dug?”

As the excavation proceeds, each



new layer is incorporated as a removable piece of the model, which can then

be built up and taken apart like Lego pieces. “The model has allowed us to represent the space in three dimensions and manipulate the layers in a hands-on way,” Brown says. This is crucial to learning how the house was built, how it was used, and how it changed over time. Brown explains that researchers can now also see how quickly the building is deteriorating. “We can now effectively identify changes such as cracks in the foundation, measure the rate of change, and focus our limited resources on selective stabilization where it matters most.”

—MATT SABO

OFF THE GRID

INISHARK ISLAND, COUNTY GALWAY, IRELAND

Modern conveniences such as electricity, running water, and telephone lines that were hallmarks of post-World War II development across Ireland never arrived on the island of Inishark, which lies around five miles off the coast of Connemara in County Galway. The island’s rugged community of fishermen and farmers, which reached a peak population of about 300 in the nineteenth century, had dwindled to a handful of residents by the 1950s. Access to food, medicine, and other provisions was unpredictable. Storms could render the island completely isolated for days or even weeks, and young people moved away hoping to find work elsewhere. The last 24 inhabitants of the island departed in 1960. In addition to the abandoned main village, which was occupied between the eighteenth and twentieth centuries, the island features a number of sites associated with a monastery founded by the island’s patron saint, Leo of Inishark, in the seventh century. Visitors can see the remnants of several early medieval structures, including the ruins of a rectangular church, a holy well, stone altars, and a possible burial monument called a leaba. Another partially preserved structure, a beehive-shaped hut called a clochán, was traditionally believed by islanders to have been the residence of Leo himself. Historian Tommy Burke, a native of the neighboring island of Inishbofin and a member of the University of Notre Dame’s Cultural Landscapes of the Irish Coast project, says that the residents of Inishark continued to incorporate remnants of the island’s monastery landscape into their worship until they left for good. “People completed stations or ritual circuits in which they would visit the clochán and other holy sites,” he says. “They were able to inhabit two worlds at once, interacting with Inishark as a spiritual place—just as early medieval pilgrims had done—while also living very difficult secular lives on the island.”

THE SITE

Inishark is only accessible by boat. Visitors can take a ferry from the mainland town of Cleggan to the island of Inishbofin and then, weather permitting, hire

St. Leo’s Chapel,
Inishark, Ireland



View of Inishark from Inishbofin



a guide to take them on to Inishark. At just over a mile from east to west and less than a mile from north to south, the island is easily walkable for those who are sure of foot and able to navigate its hilly topography. Burke offers walking tours and recommends visiting Inishark with a guide who can point out the medieval

and Bronze Age sites just a short trek from the abandoned main village.

WHILE YOU’RE THERE

A striking cathedral, a lively student culture, and an illus-

trious literary heritage have made nearby Galway one of the most popular tourist destinations in Ireland. Walk around the historic center, have a pint in one of the city’s bustling pubs, and take in some traditional Irish music, for which the Connemara region is famed.

—MARLEY BROWN

A Bradford Exchange Exclusive!

CLEOPATRA

GODDESS OF EGYPT

*A sparkling
12 INCHES
TALL*

*Worldwide limit
of 3,000*

Cleopatra's dress is a one-of-a-kind every time thanks to individual hand placement of the shimmering glass mosaic

Hand-cast of the finest artists' resin and then hand-painted for lifelike detail all the way down to the marbelized pedestal

Cleopatra's headdress and belt feature hand-set Swarovski crystals

*A Bradford Exchange Exclusive
limited to 3,000 worldwide.
Order now!*

Strong demand is expected for this regal Bradford Exchange masterwork, so order now at four easy installments of \$31.25, for a total of \$125*. Your purchase is backed by our 365-day money-back guarantee. Send no money now. Just mail the Reservation Application today.

*For information on sales tax you may owe to your state, go to bradfordexchange.com/use-tax

©2017 BGE 01-23986-001-BIL

*Mosaic
glass dress!*

Shown smaller
than actual
size of about
12 inches high

RESERVATION APPLICATION

SEND NO MONEY NOW

THE
BRADFORD EXCHANGE
—HOME DECOR—

9345 Milwaukee Avenue · Niles, IL 60714-1393

YES. Please reserve the CLEOPATRA: Goddess of Egypt for me as described in this announcement.

Limit: one per order.

Please Respond Promptly

Mrs. Mr. Ms.

Name (Please Print Clearly)

Address

City

State

Zip

Email (optional)

*Plus a total of \$17.99 shipping and service; see bradfordexchange.com. Limited-edition presentation restricted to 95 firing days. Please allow 4-8 weeks after initial payment for shipment. Sales subject to product availability and order acceptance.

01-23986-001-E98003

EASY TO ORDER!

www.bradfordexchange.com/goddess

FROM THE TRENCHES

REBURIAL IN LUXOR

Painted sarcophagus, 17th Dynasty



Mausoleum,
Luxor, Egypt



Painted sarcophagus, 18th Dynasty

One of the largest known underground mausoleums in Luxor, Egypt, was not built for a king or other member of the nobility, but for a priest named Padiamenope, who lived in the seventh century B.C. and is known to have assembled a collection of ancient Egyptian funerary texts. The mausoleum was investigated as far back as the eigh-

teenth century, but a new excavation led by Frédéric Colin of the University of Strasbourg has turned up a pair of previously unknown sarcophagi dating to long before the tomb was constructed.

Hieroglyphs on the coffin and lid of one of the sarcophagi identify its occupant as a woman named Pouyou. According to Colin, the style of the coffin suggests

it dates to the early 18th Dynasty (ca. 1550–1295 B.C.), while that of the other sarcophagus suggests it dates to the 17th Dynasty (ca. 1635–1550 B.C.). “The most interesting result of the excavation is that the sarcophagi were buried for a second time after their initial burial,” says Colin. Why this was done remains a mystery.

—DANIEL WEISS

MILD BOARS



Wild boar

Some 5,000 years ago, on Denmark's Jutland Peninsula, wild boars were feasting on an unusual diet. Isotope analysis of their remains carried out by Rikke Maring of Aarhus University has revealed that the boars were eating fish and other marine animals. The only way the boars would have had access to such exotic foodstuffs, Maring suggests, is if humans were providing the fishy treats. Maring and her colleague Felix Riede believe that people living in the area between 5,300 and 4,300 years ago used marine resources to begin to domesticate these animals and exploit them as a source of food. "This shows a very active relationship between humans and their environment," Riede says. It also suggests that people were managing animals before the Neolithic farming revolution, when the practice is thought to have begun. This may provide the evidence for clever, localized approaches to animal domestication that archaeologists have sought for decades.

—LYDIA PYNE

THE RETURN

MARCO ISLAND
HISTORICAL
MUSEUM

January 2019 to April 2021

Frozen in time for an estimated 500 to 1,500 years until discovered on Marco Island during an 1896 archaeological expedition, the enigmatic Key Marco Cat and other rare Pre-Columbian Native-American artifacts return home for a major exhibit at the Marco Island Historical Museum.



MIHS
Marco Island Historical Society



NAPLES • MARCO ISLAND
EVERGLADES
PARADISECOAST.COM

180 S Heathwood Dr, Marco Island, FL | 239.252.1440 | colliermuseums.com

 Smithsonian  Penn Museum

Key Marco Cat photo courtesy Department of Anthropology, Smithsonian Institution (A240915)

    @mihs



FROM THE TRENCHES

FOREIGN FUNERAL RITES



Beheaded skeleton, Great Whelnetham, England

The discovery of a Roman cemetery near Great Whelnetham in Suffolk, England, containing more than 50 graves of men, women, and children has revealed a peculiar burial custom practiced by some of the people living there around 1,700 years ago. At least 17 of the bodies were decapitated, and their skulls were

placed at their feet or tucked between the legs of their otherwise intact skeletons. Osteological analysis indicates the heads were not chopped off with sudden, death-inducing blows, but were deliberately removed postmortem. “This appears to be a careful funeral rite that may be associated with a particular group within the local

population,” says Andrew Peachey of Archaeological Solutions. “The rite may be associated with a belief system or a practice that came with the group as they moved into the area, perhaps as a labor force or even as slaves, from elsewhere in the Roman Empire.”

—JASON URBANUS

THE MAGIC MINERAL



Miltos and ochre samples, Greece

To the Greeks and Romans, a red pigment known as *miltos* was a sort of multipurpose supersubstance. Ancient writers, from Theophrastus to Pliny, record that the fine-grained, red iron oxide-based material was much sought after for use in decoration, cosmetics, agriculture, medicine, and even boat maintenance. A new study indicates that one of the reasons miltos was so versatile is that not all miltos was created equal.

An international team analyzed the mineralogy, geochemistry, and even microbiology of miltos samples recovered from

the Greek islands of Kea and Lemnos, and has been able to identify subtle variations that made each sample suitable for a particular use. “Different sources produced different types of miltos,” says University of Glasgow archaeologist Effie Photos-Jones. “It was not a pure mineral but rather a combination of minerals. There are also variations in the microorganisms that live in the immediate vicinity of those minerals.” For example, some Kea miltos samples contain microorganisms that would have enhanced their use as a fertilizer. Others contain high concentrations of lead, which could help prevent growth of harmful biofilms and barnacles on ships’ hulls. One sample from Lemnos has traces of titanium dioxide, a known antibacterial compound, making it useful for medicinal purposes.

—JASON URBANUS

NEW Rechargeable Digital Hearing Aid Technology Only **\$229!***

(*Each when you buy a pair)

The new more powerful HearClear™ **HCR3 rechargeable** hearing aid combines advanced technology with a low price to provide you with outstanding value.

5 Star Reviews! ★★★★★

Outstanding Product! "This product is outstanding. Dad loves it, my mom loves it, and I am grateful! Don't believe that you have to spend a lot of money to get a quality hearing aid"
- Gilmore B.



HCR3 Features!

- ✓ Digital sound processing chip provides **clear sound and makes speech easier to understand** with less feedback than old analog technology
- ✓ Don't worry about replacing batteries! **Full Charge Gives 16 Hours of Use! (Charger Included)**
- ✓ Easy **On / Off Button**
- ✓ Automatic Noise Reduction and Feedback Cancellation
- ✓ **100% Money Back Guarantee**
- ✓ **4 Programs** for different listening situations

Even Better In Pairs!

Your brain is designed to use both ears working together. In fact, studies show that you may be able to **hear up to 3 times better** in noisy situations when using two hearing aids. Buy a pair for the best results and maximum savings!



**New Improved
R3 Digital Processor™!**

**Simple.
Affordable.**

Rechargeable Digital Hearing Aid - For Only **\$229!***

The new HearClear™ HCR3 Rechargeable Digital Hearing Aids are now available to you for an unbelievably affordable price! The HCR3 is packed with the same key technologies that all high end digital hearing aids share while leaving out the extra bells and whistles that increase cost and require expensive adjustments. This helps you **hear better, while saving you a lot of money.**

Your new HearClear HCR3 hearing aids work at a fraction of the cost of name-brand hearing aids, and you don't have to keep changing the batteries! You will love the discreet, comfortable, lightweight Open-fit design. The HCR3 is **shipped directly to you and pre-programmed for most hearing losses.** It will help you hear better right out of the box and does not require professional appointments to make costly adjustments.

You can spend thousands for an expensive hearing aid, or you can spend just **\$249** for a hearing aid that is great for most hearing losses (**only \$229 each when you buy a pair – hear up to 3 times better than wearing just one**). We are so sure you will love your hearing aids that we offer a **100% Money Back Guarantee - Risk Free** if you are not satisfied for any reason.

NOW ON SALE!

~~List Price: \$849~~
Sale Price: \$229*

MONEY SAVING OFFER!

Use Coupon Code: **A93**

1-877-704-3751

***Only \$229 Each When You Buy A Pair!**
(Coupon Code & Price Valid For A Limited Time Only)



The HCR3

 **Advanced Affordable Hearing**™
Affordable Quality Since 1996!



FDA
REGISTERED

Visit and Save: **www.AdvancedHearing.com/A93**

DIE WITH YOUR BOOTS ON

Medieval leather boots



A pair of thigh-high leather boots that belonged to a man who died near the Thames River in southeast London some 500 years ago offers a rare glimpse of medieval work wear. Archaeological surveys conducted ahead of an overhaul of London's sewer system unearthed the man's skeleton—boots on, face down—in a deposit of mud on the river's south bank. "While the boots may not have been prohibitively expensive for a working-class individual, they were well



Medieval skeleton, London, England

made and built to last," says Beth Richardson, senior finds specialist for Museum of London Archaeology Headland Infrastructure. The height of the boots, a rarity for the period, indicates that the man made his living on the river, possibly as a fisherman, mud lark, or sailor. Researchers have turned up no evidence of foul play relating to his death, so whether he drowned after misjudging a current, suffered an injury, or fell into the river remains unclear.

—MARLEY BROWN

AFTER THE RAIN

Israel Antiquities Authority archaeologists have investigated a site near the town of Beth Shean where a hiker spotted a rare limestone funerary bust dating to the third or fourth century A.D. poking out of the ground after a rainstorm. There, the archaeologists uncovered a second bust as well. Only a few dozen such busts are known. These are the first examples to have been found marking the graves for which they were sculpted.

—DANIEL WEISS



Limestone tomb sculptures, Beth Shean, Israel

Discover Newfoundland & Labrador

The rich and diverse human history of this place is unlike anywhere else in the world. This is where East met West, when two streams of humanity came face-to-face at L'Anse aux Meadows around AD 1000, at the only confirmed Norse site in the New World.

We invite you to trace the steps of 9000 years of Indigenous and European explorers and settlers as you drive across Newfoundland and into the south coast of Labrador.

CALL 1 800 567 6666

MAXXIM
vacations

MAXXIMVACATIONS.COM

Photo: L'Anse aux Meadows © Newfoundland and Labrador Tourism

FROM THE TRENCHES

ICE MERCHANTS

A large, egg-shaped ice house has been unearthed near Regent's Park in London. The brick-lined underground structure, which measures 31 feet high and 23 feet wide, was built in the 1780s. "This was one of the earliest and largest commercial ice wells," says David Sorapure, head of built heritage at Museum of London Archaeology. "Previously, ice had been something of a luxury, available only at aristocratic estates." Among those who took advantage of the novel amenity were restaurants, private residents, and local doctors, who likely used it to help dull patients' pain.

—DANIEL WEISS



THE CHICKEN PEOPLE



Domestic chicken

When future archaeologists excavate sites dating to the late twentieth and early twenty-first centuries, what will define our era won't be the smartphone, the plastic straw, or any other artificial product of our throwaway culture. It will instead be the bones of broiler chickens, argues a group of scholars from the United Kingdom and South Africa who have compared the size of chickens over time from Roman Britain to the present day. The results show that chickens gradually increased in size for almost 2,000 years until about 1950, when broiler chickens—those raised to provide meat rather than eggs—started to get huge. Compared with the Asian red jungle fowl, from which they have evolved, modern broilers are positively gargantuan. At the time of slaughter, they can be twice the weight of their Asian forebears. The researchers attribute this rapid size expansion to a breeding program called “Chicken of Tomorrow” that was launched in the mid-twentieth century by the U.S. Department of Agriculture in partnership with private business. The program's goal was to increase meat production. Today, more than 65.8 billion chickens are eaten each year by the world's growing human population. All these chickens' skeletons end up in landfills, a prime location to wait out the millennia for future excavators.

—ZACH ZORICH



PETER SOMMER
TRAVELS

WWW.PETERSOMMER.COM

Tel: 01600 888 220

Toll free (US/Canada) 855 443 3027



EXPERT-LED ARCHAEOLOGICAL &
CULTURAL TOURS & GULET CRUISES



EXPLORING SICILY



EASTER IN ATHENS

TWICE WINNER OF THE UK'S
TOUR OPERATOR OF THE YEAR AWARD

We have had complaints

from subscribers
who have received
fraudulent renewal notices,
subscription offers, and invoices
from companies who are
NOT authorized agents or
representatives of ARCHAEOLOGY
magazine or the Archaeological
Institute of America.

Your renewals should only be
sent to our offices in Palm Coast,
FL or Boston, MA. You can verify
your subscription status by calling
1-877-ARKY-SUB (1-877-275-9782)
or checking online at
archaeology.org/subscribe

The publishers of ARCHAEOLOGY and
many other popular magazines
are working together to stop our
subscribers from being harassed
by these notices.

For updates please go to
archaeology.org/fraud

DON'T JUST LEARN
ABOUT HISTORY
HAVE A BLAST



Plan your trip to Virginia now at
HISTORYISFUN.ORG

HONORING THE ANCESTORS

On the island of New Guinea, archaeologists have discovered several ornately decorated stone statues at a cemetery that may be more than 3,000 years old. Erlin Novita of the Papua Archaeological

Center led a team that found the statues at Mount Srobu on the island's north coast, in Indonesia's Papua province. Here burials were hewn into limestone bedrock and covered with shell mounds by people of the megalithic cultures who likely made the statues. Most megalithic human depictions are simple, but the three-foot-tall statues unearthed by Novita's team are complex. The bodies are posed in a crouching position, similar to statues known from Polynesia. Novita believes the statues represented important ancestors and were objects of worship. She notes that they are visually similar to the smoked mummies of Papuan chiefs that are traditionally preserved in a crouched position and that continue to be venerated in some parts of New Guinea to this day.

—ERIC A. POWELL



Statue, Papua Province, Indonesia



Smoked mummy, New Guinea

AHEAD OF HIS TIME

William Jackson Palmer was a Civil War hero, railroad magnate, and founder of Colorado Springs. He was also a connoisseur of the cutting-edge technology of his day, evidence of which has been found during an excavation of a late nineteenth- and early twentieth-century dumping ground on land that once belonged to his Colorado Springs estate, Glen Eyrie. Among the artifacts recovered from the site, on a creek bed roughly half a mile from Glen Eyrie's castle, are fragments of early dry-cell batteries that Palmer used to power electric gates on the estate. "Palmer was on the forefront of



Glen Eyrie, Colorado Springs, Colorado

technological advancement as well as self-sustainability," says Sara Millward of Alpine Archaeological Consultants. Her colleague Mike Prouty adds that Palmer also ran a power plant on the property, designed reservoirs to supply running water to the house, and would likely have taken care to dispose of



Trash at Glen Eyrie

waste in a manner that would neither spoil the physical beauty of the estate nor interfere with his many engineering projects. Other objects found in the dump reveal Palmer's taste for high living, including fine English ceramics, imported shellfish, and liquor bottles, whose contents the teetotaler Palmer presumably used to entertain his guests.

—MARLEY BROWN

CELTIC TROPHY HEADS



Trophy skull, Le Cailar, France

According to ancient Greco-Roman sources, Celtic warriors living in France more than 2,000 years ago practiced a gruesome ritual. They would remove the heads of their fallen enemies and proudly carry them home as trophies to be put on public display. Archaeological evidence of this practice has come in the form of human skulls discovered at several Celtic sites. An intriguing new study now confirms the sources' assertion that the decapitated heads were embalmed. Chemical analysis of third-century B.C. skull fragments from the Celtic site of Le Cailar in southern France has detected the presence of conifer resins. Experts believe the pleasant-smelling resins may have been heated and mixed with plant oil before being applied to the heads as an embalming agent. "We don't know the precise process, but this is the first time that we have scientific proof of embalming," says archaeologist Réjane Roure of Paul Valéry University. The embalming mixture would have acted as an aromatic agent, and its antibacterial properties would have prevented decay and preserved the individual's appearance, making the vanquished enemy recognizable for a long time.

—JASON URBANUS

CROW CANYON
ARCHAEOLOGICAL CENTER
TOUCH THE PAST, CHANGE THE FUTURE

IGNITE YOUR CURIOSITY

with our archaeology & travel programs

- **Pick up your trowel in Southwest Colorado for a life-changing archaeological experience**
Week-long programs: June 2–8, 9–15 • Sept. 1–7, 8–14 • Sept. 29–Oct. 5
- **Pack your bags and join us on a travel seminar with expert scholars and remarkable destinations**
Programs run April through October and fill fast, sign up now for adventure.

RESERVE YOUR SPACE TODAY! crowcanyon.org/AMAG • 800-422-8975

230 acres of gardens,
2,300 rooms, and
60,000 exhibits.
One day is not enough.

Château de Versailles

29 March–1 April 2019

Professor Tony Spawforth
shares his unique insights
on this fascinating 4-day tour.



Find out more:
011-44-20-3370-1988
info@culturaltravel.co.uk
www.culturaltravel.co.uk

the **CULTURAL**
TRAVEL CO

Part of the Martin Randall Travel group.
AITO 5085 | ABTA Y6050

FROM THE TRENCHES

Icelandic horses



Horse calcaneus bone,
Leynir Cave, Iceland

A RIDE TO VALHALLA

When the Vikings who colonized Iceland more than 1,000 years ago interred their dead, they often included a perhaps surprising grave good—horses. Now, researchers have analyzed the scant amounts of DNA retrievable from 19 of these horses' remains and determined that all but one was male. Why the Vikings were buried with male horses is unclear, although it may have had to do with an association between stallions and virility, according to zooarchaeologist Albína Hulda Pálsdóttir of the University of Oslo. However, she notes, horse burials were not reserved for men. In fact, around a third of those buried with horses were women.

—DANIEL WEISS

INDIA'S TEMPLE ISLAND

Srirangam Island, at the confluence of the Kaveri and Kollidam Rivers in southeastern India's state of Tamil Nadu, is home to a 2,000-year-old temple complex, major parts of which are still in use today. However, much of the complex is hidden or damaged. Many older sections are buried under sediment as a result of centuries of flooding, and the complex was ransacked in the fourteenth century by the Muslim general Ulugh Khan. Recent excavations at the site, guided by geologists with knowledge of flood sediment layers, have begun to reveal what was presumed to have been lost. Researchers including geologist Mu Ramkumar of Periyar University have uncovered parts of the temple destroyed by Ulugh Khan and unearthed artifacts such as pendant lamps and statues of the deity Gopalakrishnan with his consorts. Using geophysical surveying techniques, they have also identified what they believe to be the tomb of religious scholar and teacher Sri Manavala Mamunigal, who restored the temple complex in the fifteenth century. The tomb has been left unexcavated for religious reasons.

—JOSHUA RAPP LEARN



Temple, Srirangam Island, India



Stone sculpture, Srirangam Island

JOURNEY INTO THE HEART OF HISTORY

Since 1983, Far Horizons has been designing unique trips led by renowned PhD scholars for small groups of sophisticated travelers who desire a deeper knowledge of both the past and living cultures.

IRELAND

June 14 – 29, 2019

PERU

June 15 – 30, 2019

THE VIKINGS

DENMARK – NORWAY – SWEDEN

July 6 – 21, 2019

SCOTLAND

July 12 – 26, 2019

GEORGIA & ARMENIA

July 19 – August 5, 2019

AMERICAN SOUTHWEST

August 31 – September 9, 2019

IRAN

September 5 – 21, 2019

BULGARIA

September 6 – 23, 2019

GREECE

September 7 – 21, 2019

EGYPT IN GERMANY & AUSTRIA

WITH DR. BOB BRIER

September 11 – 22, 2019

EASTERN TURKEY

September 14 – 29, 2019

GREECE BY PRIVATE YACHT

September 14 – 27, 2019

CENTRAL ASIA

TURKMENISTAN, UZBEKISTAN,
TAJIKISTAN

September 27 – October 14, 2019

...AND MUCH MORE!

Russia • Western Turkey • China
Yucatan • Egypt • France • Sri Lanka
Maya World • Italy • England • Germany
Easter Island • Armenia & Georgia • Croatia
Jordan • India Belize • Cambodia & Laos
Ethiopia • Sudan • Spain

Far Horizons
Archaeological & Cultural Trips, Inc.

1-800-552-4575
www.farhorizons.com



NEW MEXICO: Between 1540 and 1542, Spanish conquistador Francisco Vasquez de Coronado explored northern Mexico and the American Southwest. Although it had been theorized that he passed through the area of today's Coronado

Historic Site near Albuquerque, no tangible evidence of his presence had ever been uncovered. A recent large-scale metal-detecting survey has recovered Spanish nails, crossbow bolt heads, lead shot, chain mail, and other European-made equipment. These artifacts definitively link the Spaniard's expedition to the site, where he likely clashed with the local Kuaua Pueblo people.

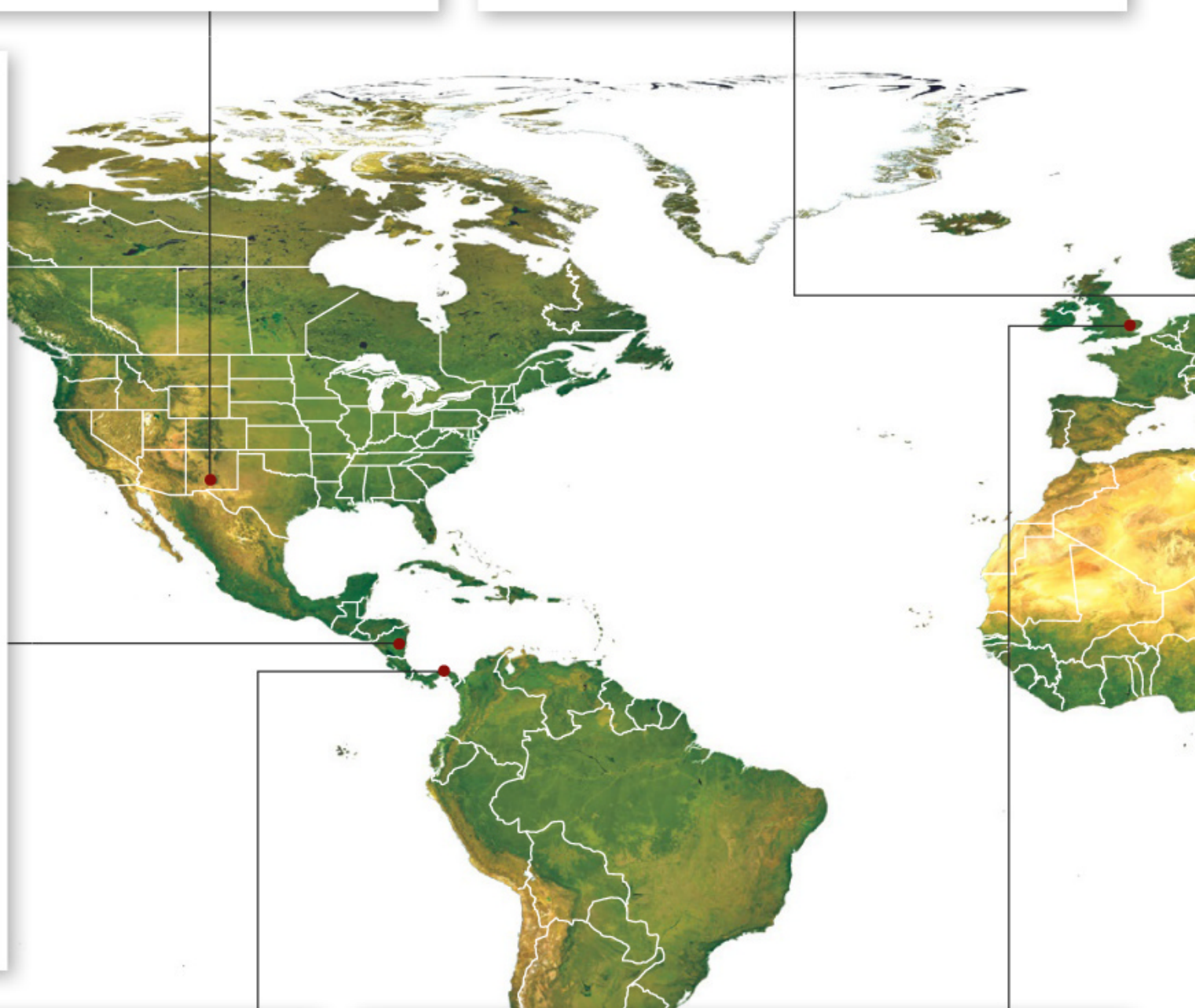


DENMARK: Domestic cats were introduced into Denmark during the first few centuries A.D. For the past 2,000 years, they have been used by humans in various ways: as a source of

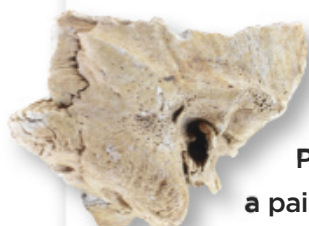
fur, as pest control, and as family pets. A new study has shown that during this span of time, especially from the Viking Age until now, cats have increased dramatically in size. This is contrary to tendencies observed in other mammal species, such as sheep, cattle, and dogs, which have historically grown smaller after domestication.



NICARAGUA: Radiocarbon dating confirms that human remains from the Angi shell midden site near the village of Monkey Point are the oldest ever found along Central America's Caribbean coast. A 6,000-year-old grave contained an adult woman who was about 4 feet 9 inches tall and between the ages of 25 and 40. She seems to have been quite muscular, with well-developed forearms, acquired perhaps through frequent rowing. Her cause of death was not immediately apparent, although there are no signs of trauma.



PANAMA: Pre-Columbian societies prioritized shellfish not only as an important food resource but also because the shells were manufactured into decorative ornaments. While small shells could be obtained by beachcombing, larger, intact examples required deep-sea diving. However, this came at a price. Analysis of dozens of precontact skulls from coastal sites revealed that specialized divers who were frequently submerged in the cold waters of the Gulf of Panama grew bone spurs in their ear canals, a painful affliction known today as "surfer's ear."



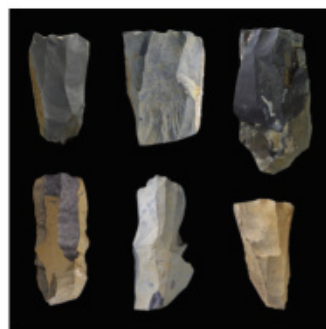
ENGLAND: With its funnel-like mouth and circular rows of sharp teeth, the lamprey fish is one of the most gruesome-looking organisms on the planet. This did not, however, deter wealthy medieval Brits from enjoying the creatures as a trendy culinary delicacy. Rare evidence of this phenomenon was found during excavations near London Underground's Mansion House station, where deposits in a 13th- or 14th-century cesspit contained lamprey teeth. Since lampreys have no jaws and their teeth are made of keratin, their remains almost never survive.





AZERBAIJAN: Ancient herders apparently found a way to entertain themselves during their downtime. A series of holes cut into the floor of a rock shelter in Gobustan National Park represents one of the world's

oldest gaming boards, dating to around 4,000 years ago. The game, sometimes referred to as "58 Holes," was popular throughout Egypt and the Middle East during the Bronze Age. Although the exact rules are unknown, 2 players likely rolled dice and moved gaming pieces along horizontal rows of dots until someone reached the top.



TIBET: Due to its perennially freezing temperatures and low-oxygen conditions, human habitation of the Tibetan Plateau is exceedingly challenging. Yet, somehow, humans have lived there for 30,000 to 40,000 years, as evidenced by thousands of fragments of human-made stone

tools and blades from the site of Nwya Devu. Located 15,000 feet above sea level, Nwya Devu is the highest Paleolithic site ever identified, and proves that humans were living along the "roof of the world" almost 20,000 years earlier than expected.



JAPAN: Microscopic impressions left by maize weevils on ancient

pottery have shown that the destructive pests have been plaguing Japanese societies for thousands of years. But X-ray and CT scanning of one ceramic vessel from a late Jomon period (ca. 2500-1300 B.C.) site on Hokkaido detected as many as 500 weevils incorporated into the fabric of the clay itself. The beetles may have been purposely included in the pot's design and manufacture in order to secure a good harvest.



SRI LANKA: Given its central location between the Middle East and Southeast Asia, the port of Mantai developed

into one of the most important hubs along Indian Ocean trade routes during the 1st millennium. It is even thought that Roman merchants were visiting the city by A.D. 200. Archaeobotanical remains have highlighted just how globally connected the site was. Cloves imported from Indonesia—more than 4,000 miles away—have been identified, as well as wheat grains and grape seeds that likely originally came from the Mediterranean region.



NEW ZEALAND: It took several days and heavy equipment, but the well-preserved wreck of a 55-foot colonial schooner called *Daring* was finally removed from its rest-

ing place along Muriwai Beach west of Auckland. The ship was delivering a cargo of grass seed when it was driven ashore by a severe gale in 1865. It had remained buried there until shifting sands and high tides partially uncovered it last year.

The remains of Heliopolis—including its only remaining obelisk—are surrounded by the Cairo neighborhood of Matariya. For more than two millennia, Heliopolis was the center of Egyptian religion.



Egypt's Eternal City

Once the most sacred site on the Nile, Heliopolis was all but forgotten until archaeologists returned to save it from disappearing forever

by ANDREW CURRY



AS GEOGRAPHICAL GUIDES, creation myths can be unhelpfully vague. Christians, Jews, and Muslims have long searched in vain for the location of the Garden of Eden. For the ancient Egyptians, things were a bit easier. The world, they believed, began on a low hill just outside modern-day Cairo. There the sun rose for the first time and made order out of a roiling sea of elemental chaos. There the Egyptian creator, Atum, and sun god, Ra, first appeared, and there they held court for millennia. And there the Egyptians built their most enduring sacred site, a city known today by its Greek name, Heliopolis, or City of the Sun. At the center of the city, contemporaneous sources and recent archaeological excavations show, was the Temple of the Sun.

Egyptians worshipped at Heliopolis over the course of countless lifetimes and thousands of years. The earliest known temples there date back nearly 4,600 years, to the first days of Egypt's pyramids. Inscriptions reveal that generations of pharaohs bolstered their claim to have descended from Atum and Ra by building grand shrines there. At its peak around 1200 B.C., the holy site was marked with dozens of colossal obelisks.

Heliopolis was known far and wide in antiquity. Called On in Hebrew, the city is mentioned multiple times in the Old Testament. It also served as a reference point for other Egyp-

tian sacred sites. Although Thebes, Egypt's capital during the Middle and New Kingdoms (ca. 2030–1070 B.C.), is now far better known, ancient Egyptian sources referred to it as the "Heliopolis of the South," and its temples were modeled on those at Heliopolis. Even in its final centuries, Heliopolis was a popular destination supposedly visited by the Greek philosopher Plato, according to an account written four centuries later by the geographer and historian Strabo. Strabo also includes a first-person account of his own visit to the site's nearly deserted ruins in his book *Geographica*.

Both physically and theologically, Heliopolis was at the heart of Egyptian religion. It was both city and temple, every corner of it holy, but also filled with everyday activity. "You can compare it to the very center of Vatican City," says archaeologist and University of Leipzig Egyptian Museum curator Dietrich Raue. "Everyone inside the city was somehow connected to the sun cult or temple."

Yet today, Heliopolis is virtually unknown. After almost two and a half millennia of continuous worship there, the importance of its temples declined. By the second century B.C., the city was abandoned, for reasons archaeologists are still trying to discern. It was subsequently plundered and stripped of anything that could be burned or reused. Beginning in the late Roman period, nearly all of its limestone



A massive red granite relief depicting falcons was once part of the gate to a temple dedicated to Atum, Lord of Heliopolis, by the 4th-century B.C. pharaoh Nectanebo I. Some of Matariya's new buildings are visible behind the relief.

architecture was carted away to build Cairo, leaving little to see above the surface. Over time, most of the city's obelisks were removed, carried off first to decorate Alexandria, and then to Rome, Paris, London, and even New York (see "The Obelisks of Heliopolis," page 30). Only one still stands at the center of the site, a 68-foot-tall red granite monument erected by Senwosret I around 1950 B.C. that juts out of the ground in the impoverished Cairo neighborhood of Matariya like a hieroglyph-inscribed spike. By the 1800s, Heliopolis had all but vanished under the silt that builds up during the Nile's annual floods. It was buried under farm fields on the outskirts of Cairo. What was left of Heliopolis is now covered by between six and 20 feet of soil and debris. "It's extraordinary that one of the most famous cities of the ancient world is now a ghost of a name," says Stephen Quirke, head of the Petrie Museum at the University of London. "It's a black hole in our knowledge of ancient Egypt. Heliopolis is *the* great site."

Heliopolis' fate wasn't unique. Many ancient Egyptian metropolises, including Thebes and Memphis, were also abandoned and later covered over by modern settlements or fields. There was little interest among early Egyptologists in exploring these urban sites. Quirke traces this to the fact that scholars of the eighteenth, nineteenth, and much of the twentieth



An early 20th-century postcard shows a farmer plowing his fields on the site of ancient Heliopolis. The last remaining obelisk is visible in the upper left corner.

logical excavation before any new construction. A nearby suburb was named Heliopolis in the ancient city's honor, but a small open-air museum and the solitary obelisk were all that remained above ground to mark the location of the sacred site. "The area was completely empty and waiting for archaeologists," says geophysical archaeologist Tomasz Herbich of the Polish Academy of Sciences. "Unfortunately, archaeology wasn't interested." While Egyptian archaeologists from Cairo University and the Supreme Council of Antiquities worked on the site's edges and conducted salvage excavations in the surrounding neighborhood, foreign archaeologists flocked to more accessible sites elsewhere in Egypt. Until, that is, Dietrich Raue came along.



A fragment of a hieroglyphic inscription referring to the pharaoh Nectanebo I reads "son of Atum, offspring of Ra-Horakhty and child of..." The rest of the inscription does not survive.

centuries were more intent on discovering inscribed temples and tombs than the cities and urban environments that surrounded them. Furthermore, by this time, most of Heliopolis was long gone. "If you're looking for standing monuments, you don't come to Heliopolis," Quirke says.

Still, the city was never truly lost. Napoleon's forces fought at Heliopolis in March of 1800, and contemporary paintings of the battle often include its ruins and lone surviving obelisk. As recently as the early 1900s, the outlines of its walls were visible, and anyone studying ancient Egyptian religion or royalty would have recognized it from ample references in ancient texts. In the later twentieth century, Egyptian authorities protected the site from development. Much of Heliopolis' central temple precinct was owned by Egypt's government and was left undisturbed as Cairo grew to the north. The large nearby necropolis—the final resting place of many of the ancient city's priests, workers, and officials—was protected by heritage laws that required archaeo-

AS AN EGYPTOLOGY STUDENT at the University of Heidelberg in the early 1990s, Raue found his mind wandering as he toiled over a difficult early Middle Egyptian translation in the library. He recalls staring at the stacks surrounding him and his eye lighting on an enticing name: Heliopolis. The volume he saw was a report on early work conducted by Egyptian archaeologist Abdel-Aziz Saleh, who documented a small corner of the site in the 1970s. Other accounts included that of an Italian team that worked in Heliopolis for a few years in the early 1900s. A report by pioneering British Egyptologist W. M. Flinders Petrie, who spent a number of weeks excavating and sketching the ruins in 1912, described the excavation of obelisk fragments, statue heads, and amulets, all of which had once decorated the city's temples. But when Raue searched for more information, he came up empty-handed. "I remember thinking there must be many more books," he says. "But those were the only ones."

The Obelisks of Heliopolis

The mighty stone monuments of ancient Egypt known as obelisks, a word derived from the Greek *obeliskos*, meaning “skewer” or “spit,” were known in Egyptian as *tekhenw*, which means “to pierce.” These monolithic, four-sided, pyramid-topped pillars rose high into the Egyptian sky, symbols of the sun god, Ra, and of sun worship, as well as of the power of the pharaoh and his relationship to the gods. As the center of the worship of Ra, Heliopolis at one time boasted dozens of obelisks, only one of which remains in its original position. However, not all of Heliopolis’ obelisks have been lost. At least seven were taken from Egypt and raised in metropolitan centers across the world. One goal of the Heliopolis Project, a joint Egyptian-German excavation, is to determine where the obelisks originally stood in the sacred city and how they functioned as part of its religious rituals.



in front of the Pantheon. In the 1700s it was placed atop a fountain designed by sculptor Filippo Barigioni.

- Macuteo Obelisk, Rome: This obelisk was erected by Ramesses II outside the Temple of Ra in Heliopolis. It was moved to Rome in antiquity and placed



10 B.C. and now stands at the center of the Piazza del Popolo.

- Flaminio Obelisk, Rome: Begun by Seti I and completed by his son Ramesses II, this obelisk was one of the first brought to Rome by the emperor Augustus in



Augustus after he conquered Egypt in 31 B.C. It was once thought to have been part of a giant sundial, but this theory is now in question.

- Montecitorio Obelisk, Rome: The pharaoh Psamtik II put this obelisk up in Heliopolis around 595 B.C. It was moved to Rome by the emperor



moved to Rome in antiquity and later reused as part of a memorial to Italian soldiers killed in the 1887 invasion of Ethiopia. It is now outside Rome’s main train station.

- Dogali Obelisk, Rome: Another of Ramesses II’s obelisks, originally set up in a minor temple in the precinct of Ra, this monument was



adopted into the Roman pantheon. It was taken to Florence by the Medici family in 1790, and now stands behind the Pitti Palace museum.

- Boboli Obelisk, Florence: Like several other obelisks, this one was moved to Rome to decorate the Temple of Isis, an Egyptian goddess



Alexandria in the first century B.C., and then to London in 1878.

- Cleopatra’s Needle, London: Dedicated by Thuthmosis III nearly 1,500 years before Cleopatra’s reign, this obelisk was moved from Heliopolis to



thank-you for help with the opening of the Suez Canal. It was erected in New York’s Central Park in 1881, just behind the Metropolitan Museum of Art.

- Cleopatra’s Needle, New York: The other half of Thuthmosis III’s gift to the Temple of Ra at Heliopolis was offered to the United States as a

A few years later, the doctoral student was looking for a niche of his own in the crowded field of Egyptology. On his way to work at the pyramids of Dahshur south of Cairo, he thought back to his experience in the library. Arriving in Egypt a few days early, he visited Heliopolis. To his surprise, one of the most important sites in ancient Egypt, with more than two millennia of history, lay virtually unexplored under what amounted to a suburban park. Raue was tantalized. “My Egyptian colleagues always knew about this, but, for me, it was incredible to see that the huge area where the temple stood was not yet completely occupied,” Raue says. “I stood at the obelisk and thought, ‘Maybe something can be done here.’” To Raue’s frustration, local officials told him high costs and a complicated legal situation made digging there prohibitive. While working on a series of other sites in Egypt

as part of German and Swiss projects there, Raue went to Heliopolis regularly, staying in touch with local archaeologists and keeping track of construction projects and development plans. “If it was going to be easy,” he says, “it would have been done many years ago.”

Here and there, small windows of opportunity would open up. In 2005, for example, Raue joined Egyptian colleagues excavating more than three acres of the ancient temple area ahead of planned shopping center construction in the middle of Matariya. Some of the first objects to emerge were fragments of inscribed statues that provided promising physical evidence of the city’s importance. During the excavation, Raue helped document a life-size depiction of the pharaoh Ramesses II (r. ca. 1279–1213 B.C.) dressed in priestly attire that illustrates not only Heliopolis’ religious significance but also its

political function as the place where generations of rulers reaffirmed their claim to power over all of Egypt. Hieroglyphs on the statue's base read "King of Upper and Lower Egypt, lord of the two lands / Son of Ra, lord of crowns / He lets the lord of crowns reunite with the throne of Horus."

Other inscriptions the team unearthed demonstrate that Heliopolis' special status as the birthplace of the gods and origin of the world helped protect it during times of religious upheaval. During the reign of Akhenaten (r. ca. 1349–1336 B.C.), who attempted to reform Egyptian worship by eliminating polytheism, Heliopolis continued to thrive. Even after Akhenaten built his own city at Amarna, carvings on stone blocks called *talatat*, bearing his name and that of his queen, Nefertiti, were placed at Heliopolis. "Heliopolis is the only place in Egypt with new temples and statues throughout the Amarna period. It's the only temple we know of that is continuously open in that period," Raue says. "The Temple of the Sun had an uninterrupted cult for at least 2,400 years. The continuity is amazing. Heliopolis wasn't like anywhere else in Egypt."

AFTER THAT FIRST BRIEF campaign, Raue wasn't certain he would ever have the chance to excavate in Heliopolis again. He spent many years working near Aswan, far to the south. Then came the Arab Spring of 2011. In the chaos that followed, Egyptian authorities lost control of the area, unleashing an unauthorized building boom. At the same time, the center of the ancient temple site became an illegal trash dump. Raue estimates that thousands of tons of garbage—a stinking layer of construction debris, animal carcasses, and burned plastic from about 20 to a shocking 42 feet thick—accumulated on top of the site of the Temple of the Sun in the space of just two years.

For Raue and Aiman Ashmawy, the head of the archaeological sector at the Ministry of Antiquities, the chaos offered an opportunity. In 2012, even before the situation in Egypt had stabilized, they returned to Heliopolis and began an ambitious joint program of rescue excavations in the parts of Matariya threatened by illegal development, which is to say, almost the entire neighborhood. For the past six years, Raue and Ashmawy have been working just ahead of the Ministry of Endowments' bulldozers, scour-

ing construction trenches and building sites for traces of the ancient city and its temples as part of the Heliopolis Project, a joint Egyptian-German excavation. The process sometimes resembles looking through keyholes to draw conclusions about the rooms behind. Raue can't select his dig sites, and often has just days to work. "The best discoveries aren't scheduled," he says. They are looking for the footprint of the central Temple of the Sun, but also trying to understand more about the city's end. "One of the project's aims is to find out who gave up the temples and when and why," Raue says. The excavations have played a role in shaping other research questions, such as how the holy city's outer walls were constructed or what its residential precincts might have looked like.

Before they did anything else, the team, together with a

Archaeologists recover a colossal statue of the 7th-century B.C. pharaoh Psamtik I, one of the high-quality works of art honoring generations of rulers that have been found in Heliopolis.





A fragment of a red granite sphinx (top right corner) that likely dates to the New Kingdom (ca. 1550–1070 B.C.) and basalt blocks from the temple of Nectanebo I emerge from the dense layer of silt and debris that covers Heliopolis.

force of more than 100 local residents and multiple bulldozers, spent weeks removing the garbage. Underneath the refuse, they confronted six, or sometimes more, feet of modern topsoil. Another six to 10 feet of ancient loam packed almost as hard as concrete lay under that. Beneath it all, they came upon the debris left behind when Heliopolis was dismantled to serve as construction material. “Heliopolis has always been too close to Cairo,” Raue says ruefully. And that’s not all. Even once the layers of garbage and soil were removed, there was a final obstacle—much of Heliopolis’ ancient ruins are actually submerged. “All of our finds are between zero and eight feet under the water table,” Raue says. During the excavations, pumping creates small lakes, which cause huge logistical problems and added pressure for a team already under enormous constraints. For example, it took a tremendous effort to remove an eight-ton fragment of a standing sculpture of pharaoh Psamtik I (r. 664–610 B.C.) from under more than six feet of groundwater.

In 2015, Raue and Ashmawy excavated a corner of the central temple precinct. They found the foundations of walls three feet thick, with workshops and evidence of butchery. North of the temple, Egyptian teams had previously found multistory residential buildings. Raue believes that priests and thousands of support staff lived behind the city walls in extremely close quarters, packed into these high-rise mudbrick tenements. “Imagine Manhattan,” Raue says, or the densely packed brick apartment buildings that crowd in on the modern-day site. “These were houses a nineteenth- or twentieth-century Egyptian would recognize.”

Meanwhile, the Heliopolis Project has turned up workshops and small grain silos at the southeastern corner of the temple. Rough ceramic trays found near the silos suggest the existence of a bakery that served hungry priests, and a wooden scribal

palette bearing a New Year’s inscription is evidence that the city’s holy character was never far from mind, even in its residential quarters. The opportunistic nature of the dig, colleagues suggest, has revealed details that an excavation focused on the Temple of the Sun might have missed. “We have a chance to understand daily life,” Quirke says. “The advantage of rescue archaeology is you get sharp glimpses of the city in its detail. We’re beginning to get snapshots that all add up to a kaleidoscope of urban life. Any opportunity to know more is really precious.”

That’s not to say that the team is ignoring the spectacular statuary left behind by generations of pharaohs. When Cairenes looted the site for building materials in the Middle Ages, they took the limestone but left the remains of

toppled sculptures of red granite, quartzite, and basalt in place. Among these are intact reliefs 15 feet square and granite falcons that once graced a temple gate dedicated to the pharaoh Nectanebo I (r. 380–362 B.C.). Other finds point to even more impressive monuments—a recently uncovered foot-and-a-half-long stone claw suggests the existence of a sphinx statue 50 feet long. “Whatever sculpture we get is extremely high quality,” Raue says. “Heliopolis was such an important site that we just get the best.”

The team has also uncovered evidence of smaller temples dedicated to Egyptian deities including the falcon god Horus, cow goddess Hathor, mother goddess Mut, and the king of the gods, Amun. But the sun god Ra and the Temple of the Sun were the site’s epicenter. A few rushed days of excavation in 2015 yielded pottery that helped Raue date its massive



A recently recovered lintel from a building constructed by the 13th-century B.C. pharaoh Ramesses II.

mudbrick walls, which he estimates enclosed an area of 31 acres. The dating of these walls suggests that in antiquity, too, Heliopolis was a dynamic place. In around 1500 B.C., parts of the city's necropolis were leveled to wall in what ancient sources dubbed the "High Sand"—the exact spot where Egyptians believed the world was created, and Heliopolis' holy of holies. This temple-within-a-temple was the center of the sun god's cult, and, thus, of Egyptian religion.

ASHMAWY, RAUE, AND their team are now juggling small excavations scattered across nearly a square mile of teeming urban neighborhoods. They're just beginning to get a sense of the city of Heliopolis as a whole. Geomorphological investigations by Ghent University geoarchaeologist Morgan De Dapper reconstructed the height of the primordial hill upon which the first temple was built. Drilling in spots where they could not conduct full excavations, the team mapped archaeological layers more than 20 feet thick. Geophysical techniques are enabling Herbich's team to look below the ground in places that haven't yet been built over. Using differences in the electrical resistance of mud and stone, he's able to trace and measure the temple's foundations and walls, even under many feet of silt and groundwater. The results, guided in part by century-old surveys drawn by Petrie and his Italian predecessor, Ernesto Schiaparelli, as well as maps from the mid-nineteenth century, include sections of the city's outer walls. Based on their width—some sections revealed by recent excavations are 55 feet across in some spots—Raue estimates that Heliopolis might have been guarded by walls up to 60 feet high. "In a flat landscape, it must have looked more like a fortress than a city," he says. "Imagine a wall in front of you a kilometer [more than half a mile] long." The team is also starting to envision Heliopolis' inner temple districts. "Suddenly, we have an idea of the sacred topography for the first time," says Raue. Understanding how the city and its temple buildings were laid out could add to what scholars know about how Egyptian religion developed. "It would be valuable to know if the design of these shrines to the sun followed those of conventional temples," says University of Cambridge archaeologist Barry Kemp, who excavates at Akhenaten's city of Amarna, "or whether, in deference to



The excavated remains of one of Heliopolis' many temples. In addition to temples dedicated to Atum, archaeologists have found others dedicated to Egyptian deities including Horus, Mut, Hathor, and Amun.

the visibility of the sun, the shrines were more open in plan."

Heliopolis' remains may soon be completely inaccessible, covered over by rapidly expanding housing projects and other construction in the booming Egyptian capital. Cairo is one of the most crowded cities in the world. With 50,000 people per square mile, it's almost twice as densely populated as New York. Matariya, the neighborhood surrounding Heliopolis, packs more than twice that many people per square mile into brick and cinderblock tenements, many directly overlooking the open spots where Raue and his colleagues work. "It's more under threat now. It's like trying to stop Central Park or Hyde Park from getting built over," Quirke says. "But Cairo is growing in a way New York and London are not. It's remarkable there's anything left of Heliopolis at all."

Ashmawy and Raue's work is a race against this seemingly inevitable loss, a struggle to excavate and document one of the most important places in ancient Egypt before it's gone forever. "Heliopolis is not just a cult site like everywhere else," Raue says. "It's completely different, from its very first moment." ■

Andrew Curry is a contributing editor at ARCHAEOLOGY.



The sacred area (left) at the western edge of Heliopolis in 2012; the same area (right) pictured in 2014 shows the extent of the building boom that threatens to completely cover Heliopolis.



A MEMORY OF HOME

A volcanic eruption forced the people of Ecuador's Jama Valley to abandon their homeland. What brought them back?

by MARLEY BROWN

For days or even weeks around the year A.D. 90, the sky over Ecuador's Jama Valley must have been nearly black, even at the height of the day. Massive clouds of ash from the eruption of a volcano called Guagua Pichincha obscured the sun, buried crops of corn and manioc, and clogged rivers. The people living in the valley, who belonged to the Jama-Coaque culture, were forced to salvage as much of their harvest and as many of their belongings as possible and flee. Survivors of the initial eruption endured devastating lingering effects. The land would not be habitable again for generations, and people did not return for more than 300 years. When they did, archaeological evidence suggests, they carried their culture and traditions intact. "There was resilience in the population that recolonized the valley," says archaeologist James Zeidler, a research fellow at Dumbarton Oaks Research Library and Collection, "and there must also have been a strong social memory of their homeland." With scant historical records left by the Spanish, who invaded in the sixteenth century, archaeological research has been essential not only to identifying the people who lived in the valley, but also to understanding what their lives were like.

The Jama Valley lies at the northern end of Ecuador's Manabi Province, along the Pacific coast, roughly 125 miles west of Guagua Pichincha volcano, which looms over present-day Quito. Zeidler began working in the 1980s to establish an archaeological chronology for the valley's multiple cultures. Thus far, he has found around 230 archaeological sites and 84 earthen mounds. There is no monumental stone architecture in the area.

To distinguish among the cultures that occupied the valley at various points throughout history, Zeidler looked to both

datable layers of stratigraphic ash, called tephras, and types of ceramic artifacts. One of the first distinctly visible ceramic traditions he identified belongs to the people of the Valdivia culture, who arrived in the valley around 2000 B.C. "Because of volcanic ash falls," Zeidler explains, "there were several long periods during which the valley was depopulated." The gap after the Valdivia began around 1800 B.C. and lasted for more than 500 years. Then the Chorrera people came in and stayed 500 years themselves. "This was followed by yet another three-century-or-so hiatus after another volcanic eruption ended the Chorrera occupation," Zeidler says. Then the Jama-Coaque arrived.

The Jama-Coaque, who first settled the Jama Valley sometime around the third century B.C. and remained until at least the Spanish conquest—except for the period of post-eruption exile—were first identified by Ecuadorian archaeologist Emilio Estrada in the 1950s. The culture is named for two of their population centers, the Jama Valley and the Coaque Valley, which extend through Manabi Province all the way to the Pacific Ocean. They are known for the expressive anthropomorphic figurines they produced. Many of these were looted from archaeological contexts between the 1960s and 1980s, which has made it difficult for researchers to determine why the Jama-Coaque made them and how they were used. In the period following the first-century A.D. eruption, these figurines took on a new variety of forms and themes. Simultaneously, the Jama-Coaque made marked advances in technology, agriculture, and settlement planning. Archaeologists believe these shifts may be traceable to the constant threat of volcanic activity, and, perhaps, the aftermath of the Guagua Pichincha eruption in particular.

How did the Jama-Coaque survive after the eruption and how did they subsequently grow and thrive, especially as smaller, sometimes barely perceptible, ash falls, known as cryptotephra, continued to intermittently pepper the Jama Valley? “The population had to move to areas that weren’t as affected by the ash falls,” Zeidler says, “and they only came back when there was enough regeneration to make the landscape habitable again.” Zeidler and archaeologist Corey Herrmann of Yale University may have identified refuge zones outside the Jama Valley where the Jama-Coaque—quite possibly those who fled the first-century eruption—established communities. “We have identified a number of Jama-Coaque sites in the nearby Chone

region,” Herrmann says, referring to his research area roughly 40 miles southeast of the Jama Valley. “This has led us to ask how widespread the abandonment was. Was volcanic activity something that was also faced by the people in Chone and other surrounding areas, and how did the people already living in these places respond to absorbing refugees?”

Displaced people would have been forced to fight over scarce resources. Jama-Coaque survivors of the first-century

Guagua Pichincha eruption not only had to wage war to win territory in areas less affected by the ash falls, but may have been forced to diversify their agricultural system, perhaps incorporating techniques learned from other groups that they encountered. “We start seeing large storage



A ceramic vessel made by a member of the Jama-Coaque culture of coastal Ecuador's Jama Valley probably dates to between A.D. 400 and 800. It depicts a musician beating a drum and may have been used during a ritual associated with warfare.

pits and evidence from the paleobotanical record of major increases in agricultural production,” says Zeidler. The Jama-Coaque also introduced terracing in elevated areas where rainfall would wash away lingering ash, as well as slash-and-burn and other forestry techniques that took advantage of the nutrient-rich volcanic soil and previously domesticated landscapes. This promoted the growth of wild food plants, and attracted game animals. According to Zeidler, this gave the Jama-Coaque more economic security than had been enjoyed by the previous Valdivia and Chorrera peoples, who relied almost entirely on planting in the lowland floodplain. “Those areas are the most vulnerable to catastrophic flooding after a volcanic event,” he says. “The valley bottoms just get overloaded with ash deposits, and it basically decimates the agricultural system.”

The remnants of large ritual and political centers spaced evenly across the Jama Valley around 10 miles apart suggest that Jama-Coaque society had developed into a complex chiefdom in the region. “This is a three-tiered settlement hierarchy,” Zeidler says. “It ranges from small homesteads and hamlets of less than five acres to smaller administrative centers, and then to really big sites like San Isidro, in the center of the valley, that cover a footprint of well over 100 acres and feature the largest mounds.” Zeidler believes this organizational complexity gave the Jama-Coaque flexibility

in times of ecological disaster, as power and resources could cycle between the centers. Over time, the Jama-Coaque also developed long-distance trade networks and exchange routes that may have ranged as far as the coast of western Mexico. “There is evidence of more effective exchange routes and ties across short, medium, and long distances,” Zeidler says. “A lot of things come together that all indicate a more complex society after the Guagua Pichincha eruption.”

Zeidler thinks struggles over land and resources, and possibly also an increasingly competitive political hierarchy, are reflected in the art the Jama-Coaque began to produce. “When they move back into the valley, all of a sudden they’ve got a very institutionalized emphasis on warfare,” he says. “For the first time we see a category of figurines dedicated to war. We see bellicose figures standing with shields and spear throwers.” This type of figurine is often attached to a ceramic cup, which was likely used in some sort of drinking ritual associated with warfare. “You also see evidence in the figurines for taking trophy heads and even head shrinking,” he says.

Art historian Thomas Cummins of Harvard University has traced the development of prehistoric ceramics discovered throughout Manabi Province, identifying Jama-Coaque hallmarks such as the depiction of costumes and dress, including designs indicating gold beads, feathers, conch shells, and earrings. “The Jama-Coaque figurines seem to eventually



The still-active Guagua Pichincha volcano, just west of Quito, has erupted many times in the past. A massive eruption around A.D. 90 produced layers of ash, called tephras, that blanketed the landscape all the way to the Pacific coast, some 200 miles away.

reflect a shift from a world that is more or less benign to one in which there seems to have been a lot of fighting and a lot of competition,” says Cummins.

To eventually return to the Jama Valley, the descendants of those who had scattered after volcanic eruptions needed to maintain an impression of their homeland. For more than three centuries, generations of Jama-Coaque may have told stories about the valley around hearths and on raiding trips. “Evidence of that memory can be found in



This figurine of a priest wearing a feather headdress probably dates to between A.D. 400 and 800. The priest wears elaborate jewelry, including a necklace decorated with small human heads.



The remnants of ancient terracing are still visible in the Chone region of coastal Ecuador. The Jama-Coaque adopted this agricultural technique when they fled after the A.D. 90 eruption and brought it back to the Jama Valley upon their return.

usage of the landscape and multiple occupations of previous settlement sites,” Zeidler says. “Even after long periods of abandonment, when people recolonized the valley, they were always going back to the same mound structures. They weren’t searching out new places on the landscape to establish their sacred sites.”

A later prehistoric volcanic eruption, which affected the Jama Valley around the twelfth century, may have finally weakened the Jama-Coaque, leading to the collapse of one or more of the valley’s power centers. But anthropologist Payson Sheets of the University of Colorado, an expert on how societies react to the stress of volcanic events, says that the Jama-Coaque’s success story should challenge the idea that understanding the effects of catastrophic volcanism is as simple as whether or not a society survives. “Most of the popular literature plays up the devastating nature of volcanic eruptions, burying cities in volcanic ash or lava flows, and particularly big eruptions causing the collapse of civilizations,” he says. “Such accounts are dramatic, but they often overlook the resilience of people overcoming challenges.” Sheets believes that people learn about extreme events such as explosive eruptions through oral history and carry that knowledge for generations. “They also innovate, and succeeding cultures are not merely carbon copies of the earlier ones,” he says.

Zeidler and Herrmann have found that, nearly 500 years after the Spanish arrived on the coast of Ecuador, the abiding link with the landscapes of the past endures. Farmers in the Jama Valley still rely on the natural runoff from ancient terracing, and sometimes even build their houses on the high ground offered by mounds constructed thousands of years before. “There is still a deep connection to the land,” says Herrmann. “Whether they know it or not, people are benefiting from man-made landscapes that have been worked and maintained by humans for millennia.” ■

Marley Brown is associate editor at ARCHAEOLOGY.

The Cappadocia Gate was one of 7 gates that led into a seventh-century B.C. city high atop an Anatolian mountain called Kerkenes. This stone-paved passageway once led to wooden doors that gave entrance to the city. The badly burned skeletons of an Iron Age man and woman were discovered here.



BETWEEN TWO EMPIRES

Exploring the extensive remains of a short-lived city that flourished during a turbulent era of ancient Near Eastern history

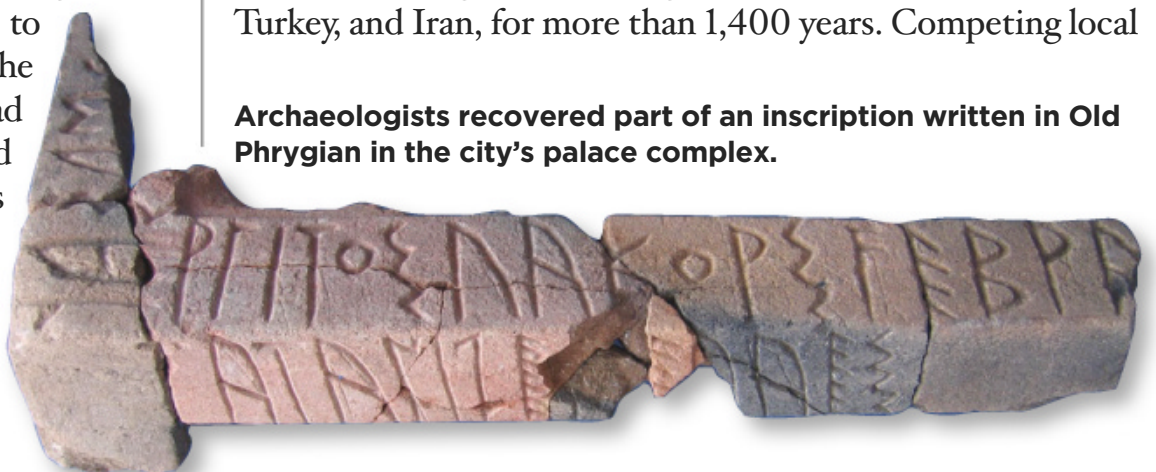
by SARA TOTH STUB



THE TWO SKELETONS lay buried for more than 2,500 years high on a mountaintop on the Anatolian Plateau. When the woman's body was discovered, she was lying face down, her left hand covering her face and her right arm outstretched, as if attempting to break her fall. A year later, archaeologists found the man's body, badly smashed and contorted as if he had first fallen to his knees, then onto his side. Both had likely been trying to escape a massive fire that was set to destroy their city. But as they fled through the city gate, its timber supports ablaze, the entire structure collapsed, stone blocks crushing the man and woman under their weight while the raging fire burned their bodies.

The late seventh and sixth centuries B.C. were a tumultuous period in Anatolia and elsewhere in the Near East, according to later Greek and Persian texts. The year 609 B.C. brought the final fall of the Assyrian Empire, which had dominated much of the region, including the modern countries of Iraq, Turkey, and Iran, for more than 1,400 years. Competing local

Archaeologists recovered part of an inscription written in Old Phrygian in the city's palace complex.





An aerial view of the Kerkenes mountaintop shows 4 miles of the remains of stone walls that enclose a densely packed Iron Age urban settlement.

powers tried for decades to fill the power vacuum, until the newly established Persian Empire eventually gained control of much of the area in 550 B.C. “We are in that in-between period when there was a lot of unrest and unease in the Near East,” says archaeologist Scott Branting of the University of Central Florida. “There was a lot of shake-up and people moving around the region.”

During or just after the disintegration of the Assyrian Empire, an unknown people built a large city on a mountain called Kerkenes, about 120 miles east of Ankara.

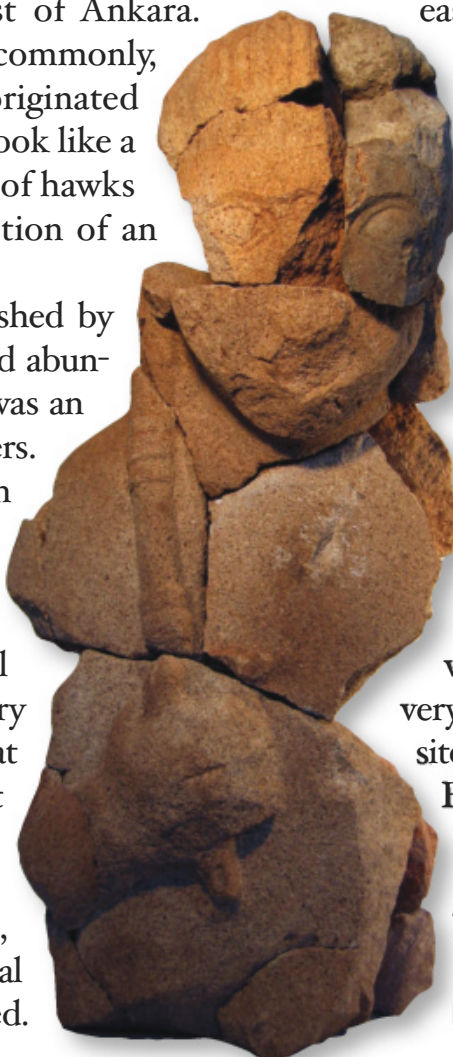
“Kerkenes” is Turkish for “hawk,” or, less commonly, “barren” or “poor.” The name may have originated from the shape of the mountain, which can look like a hawk from a distance, or from the tendency of hawks to build nests there, or it may be a corruption of an unknown, older word.

The ancient city at Kerkenes is distinguished by its impressive size, complex city planning, and abundant wealth. “They built what they thought was an ideal city,” says archaeologist Geoffrey Summers. Kerkenes is the only known Anatolian urban center from the period that was established anew, from the ground up. In Anatolia, the time between the Assyrian and Persian Empires is something of an archaeological void. “We know very little about the ordinary people who founded Kerkenes other than that they probably came from the west, and that they decided to build a new city on top of a mountain,” says Summers. For Branting, who now leads a large, multiyear project at Kerkenes, the opportunity to understand the city’s cultural makeup, economy, and urban life is unparalleled.

Schmidt uncovered potsherds that dated the city to the Iron Age, hundreds of years after the Hittites had fallen out of power here. Disappointed, Schmidt wrote to his superiors in Chicago about his “regret” with regard to the new dating. OI researchers, who were focused on identifying Hittite sites, abandoned Kerkenes. Despite his disenchantment, Schmidt noted admiringly the sophistication of the city’s grid plan in his 1929 article on the site, writing, “It was built complete by the first-comers, as indicated by the uniform arrangement of the ground plans easily traceable on the surface.”

More than half a century later, Summers, who at the time was assistant director at the British Institute at Ankara and a professor at Middle East Technical University, first visited Kerkenes as part of a British Institute project to organize old surveys of archaeological sites in Anatolia and prepare them for publication. The site had been overlooked because of its remote location, scholars’ low expectations of finding inscribed artifacts, and the reality that most excavation permits in the area were granted for salvage projects associated with new construction. When Summers arrived he was struck by the city’s size—and by the fact that no one had explored it for so many years. “It was beautiful, with marvelous views,” he recalls of his first visit in 1987. “But it was very poorly understood, even though it was clearly a major site in the Iron Age.” Soon after, Summers and his wife, Françoise, then an architect and lecturer at Middle East Technical University, initiated the Kerkenes Project.

A life-size sandstone statue is among the artifacts found during excavations of the palace entrance. The statue is one of many that were smashed and burned during the city’s destruction.



The Summers team's years spent meticulously mapping the city through aerial photography, remote sensing, and other geophysical surveys further revealed the city plan first mentioned by Schmidt. "We never would have found such results with only excavation," says Françoise Summers. "It's amazing to realize that most things you see on the map you can't see on the surface anymore." These surveys helped the team, which since 1995 has included Branting, to focus their plans on digging what appeared to be large public buildings, hoping these might lead to a better understanding of who built and controlled Kerkenes. In the early 2000s, the team uncovered a palace complex embellished with sandstone statues, an inscribed monument, and carved idols. A 30-foot-wide stone-paved entranceway led to the palace, whose giant wooden doors, evidence of which survives in the metal bands that held the timbers together, were set between two 20-foot-high towers striped with horizontal bands of grey granite, yellow sandstone, and white limestone. A pair of three-foot-tall carved metal ibexes, now missing their heads, once stood in this monumental entrance.

The team also uncovered one of the city gates, which they named the Cappadocia Gate because it faces southeast overlooking that region. Constructed entirely of stone with stabilizing timber beams, the structure included five towers, an external stone glacis, or steep slope, and an enclosed court in front of two gated openings with an inner chamber between. Other Anatolian cities such as Sardis and Gordion had similar defenses, but Summers is unsure whether the residents of Kerkenes and these other cities were concerned about specific attackers, or about the general threat of war at this unpredictable time. He is certain, however, that the threats were external.

In the court, just inside the gate, the team found a stepped stone monument topped by a carved stone icon with a blank face and hair curled on its shoulders. The two skeletons were discovered nearby. The fact that one was a woman has led to the suggestion that they were civilians fleeing, rather than attackers or looters, who likely would have been male, says Yilmaz Erdal, an anthropologist at Hacettepe University in Ankara who studied the skeletons, which are the only human remains from the period found at Kerkenes. "We don't know anything more about these people other than that we can see the story of their death," says Erdal. Although who these victims were will likely never be known, evidence of the cultural influences and economy of the society in which they lived is beginning to be uncovered. The Kerkenes Project's research suggests that the city included a significant population of artisans. "The people in charge here must have been using some sort of specialized craft economy to make and control money and power," says Joseph Lehner, an anthropological archaeologist



A pair of iron bands that once supported the wooden doors of the Cappadocia Gate survived the fire that ravaged the city.

and codirector of the Kerkenes Project. "If you have a palace, there must be craft production tied to and supporting that palace. We have become more and more convinced that Kerkenes is linked with the growing global trade, but we are still looking for exactly what allowed their economy to be so successful."

BRANTING AND HIS TEAM have now shifted their focus to the residential areas of the city. They hope to excavate about an acre and a half, nearly doubling the total that has been dug since the project began. "The excavation areas are like small dots compared to the whole city," says Françoise Summers, but nevertheless the new work should give scholars a window into the residents' daily life and economic activity. Thus far, the team has mapped 750 distinct walled urban blocks arrived at by several of the city's main streets. Each contains varying numbers and styles of buildings, and a few also have a large public edifice, perhaps a temple. Often, stone-lined



A view of one of Kerkenes' hundreds of urban blocks, which archaeologists are searching for evidence of the city's economy and social makeup.

pools and reservoirs are found outside the urban blocks, ensuring a year-round water supply. Kerkenes' residents, Branting has found, frequently built their houses to accommodate the site's natural topography, including slopes and creeks.

The opulence that excavators have found in the public buildings is also beginning to be seen in the residential spaces. In the summer of 2018, excavations in one urban block revealed a carved sandstone staircase. "We see private spaces with elaborate decor," Lehner says. "In a whole structure built from granite, you suddenly have this fancier sandstone." In the same block, the team unearthed examples of imported goods, including a gilded carved-ivory plaque with amber insets depicting deer and sheep, whose craftsmanship, says Branting, points to a very high level of luxury.

Digging there has also exposed storage space, a kitchen, and rooms with various tools, hints of the artisans based in the city. "Amid all the chaos in the region, this may have been a stable place that attracted artisans," says Branting. The archaeologists also continue to uncover evidence of Kerkenes' wealth and connection to the global economy, including thousands of small pieces of ivory that were once part of furniture, ivory and antler plaques, and other decorative objects that likely originated from

the Middle East or Africa but may have been carved locally, according to Lehner. If so, this would be the first evidence found in central Anatolia for ivory working, a craft that thrived at the time in the Aegean and Mediterranean regions. Isotope analysis has revealed that the metal used to support the city's stone and woodwork came from areas around the Black Sea and the southern Levant, in what is now Jordan and Israel. "Kerkenes is one of the first places in the ancient Near East where scholars see large iron bands and spikes used to support and stabilize monumental architecture," says Lehner. Although the team hasn't yet found any real smithing evidence or a large metalworking facility, they have uncovered small metalworking tools in the urban block. Says Lehner, "The metalwork must have been happening on-site, as the architectural metal is custom-made."

THE KERKENES PROJECT TEAM is now trying to clarify where the city's inhabitants came from, what culture they belonged to, and how they were connected to the people who built the city. "We are trying to get broader exposure and find out more about who lived here," says Branting. Evidence unearthed during excavations at the Cappadocia Gate and palace complex suggests that the residents likely came from

A Hint from Herodotus

Since the 1920s, there has been a debate about the identification of a city called Pteria mentioned by the Greek historian Herodotus. Kerkenes Project archaeologists have embraced the idea that the city at Kerkenes might be Pteria. Pteria, Herodotus writes, was evacuated and destroyed by Croesus, a Lydian king, as he pursued an ultimately unsuccessful campaign to hold and expand his ground against Cyrus the Great of Persia in 547 B.C.

Evidence of the conflagration that destroyed Kerkenes was first detected by a geophysical survey in the 1990s. Later excavations exposed vitrified stones and bricks, carbonized seeds, and charred metal, as well as stone floors and walls that were entirely burned. The heat from the fire was so intense that it even cracked and melted granite. "Nearly every trench has signs of fire," says Dominique Langis-Barsetti of the University of Toronto, who is part of the Kerkenes Project. "It's everywhere." With its thatched roofs and numerous buildings constructed of resinous pine, Kerkenes would have burned easily.

The patterns and extent of damage indicate that the fire was set deliberately. A man and woman found at the Cap-



The Cappadocia Gate

padocia Gate are the only known human remains. Almost no personal belongings, and very few objects in general, have been found, which may indicate that no one was left in Kerkenes when it burned and that residents took their belongings with them. Or there may have been a more nefarious event—according to Langis-Barsetti, pieces of smashed ivory and broken stone statuary point to the city having been looted shortly before the fire.

Being able to pinpoint when the fire occurred by dating burned artifacts may help prove whether or not Kerkenes is Pteria, says archaeologist C. Brian Rose of the University of Pennsylvania, who also works in the region. But whether or not the identification is correct, the site is invaluable to a fuller understanding of the changing dynamics in Anatolia during the Iron Age. "It is the restricted time span of this site that makes it so important," Rose says, referring to the

fact that Kerkenes lasted for less than a century. Furthermore, he adds, the discoveries at Kerkenes could be used as a benchmark to decipher other archaeological sites with layers that are hard to match to particular periods. Dating the fire might also help scholars date finds from other sites in the region at places such as Gordion and even Troy. —STS



Artifacts such as a glass bead (three views), a copper alloy pin, and a plaque fashioned from antler depicting a dog are evidence of the presence of artisans in the city.

western Anatolia. Religious monuments, statues, and dedicatory inscriptions written in Old Phrygian found at the gate and in the palace complex are evidence of strong cultural influences from Phrygia, a once-powerful Iron Age kingdom about 170 miles west of Kerkenes, whose capital was at Gordion. The Phrygians were once ruled by King Midas, who is enshrined in myth by tales that everything he touched turned to gold.

Two excavated two-room buildings with pitched roofs, open porches, and central hearths at Kerkenes strongly resemble megarons, a style of room typical of Phrygian settlements such as Gordion. “We’re pretty certain that the Phrygians were involved in the planning and building of the city,” Branting says. At the time Kerkenes was built, Gordion had come under control of the Lydians, whose capital was in Sardis, in southwestern Anatolia. This has led some scholars to suggest that the Phrygians fled east to establish a new center at Kerkenes. “The hypothesis that this is a new Phrygian capital founded to run away from the Lydians doesn’t really work,” Branting says. “If the Phrygians were so strong that they could build this new city, then why wouldn’t they just stand their ground at Gordion?”

Furthermore, archaeologists at Gordion have found no evidence that the Lydians used violence or tried to suppress Phrygian culture, says archaeologist C. Brian Rose of the University of Pennsylvania, who is the director of excavations there. In fact, there was a building boom in Gordion at the time. “The notion that the residents of Gordion were disenchanted and built Kerkenes seems unlikely,” Rose says. He points out that some of the Phrygian elements found at Kerkenes are more similar to those seen in the smaller settlements of the highlands

around Gordion, rather than in the capital itself. “The larger picture is rather difficult to discern,” he says. There is archaeological evidence, Rose explains, including portable Phrygian stone idols, as well as altars and other religious structures, that depicts Phrygians moving around Anatolia in the seventh century B.C. “So much was happening in the region that it’s not surprising to see a new city,” says Rose.

Graffiti found on the Cappadocia Gate depicting Phrygian symbols also indicates that the common residents in the city identified with Phrygian culture, and that it was not something embraced just by those who established and governed the city, Summers says.

But even if people who came from Phrygian-dominated areas to the west built Kerkenes, that doesn’t paint a full picture of who may have lived there. “There is also evidence it wasn’t exclusively Phrygian,” Branting says, pointing out that artifacts from other cultures have also been found, including ivory plaques associated with Lydians and others from around the Aegean Sea. Tinned bronze created by brushing a tin mixture onto the surface of another metal, such as that found on the ibexes flanking the palace entrance, was typical of the Urartu culture, based farther east, near today’s Turkish-Iranian border. Says Branting, “Turkey is a very mixed place at this time, with lots of people coming and going.”

Despite its short lifespan, Kerkenes stood out from other Iron Age cities in Anatolia for its size, social complexity, and comprehensive city plan. While most of the region was still dependent on an agrarian economy, Kerkenes’ inhabitants, including, perhaps, a class of arti-



This ornament made of gold and electrum was found near the Cappadocia Gate.

sans with considerable influence and power alongside the ruling elite, were more strongly tied to a growing global trade economy. “Kerkenes represents a single short-lived node in a constellation of competing and cooperating entities at this time,” Lehner says. But, he adds, forging such a new social and economic path had its risks. Only a century after its founding, the city was gone, lost to the fragility of the new economic order and the instability caused by the tremendous geopolitical changes sweeping the region. ■

Sara Toth Stub is a journalist living in Jerusalem.

ART AT THE END OF THE ICE AGE

Newly discovered engraved stone tablets are evidence that a prehistoric tradition endured long after it was thought to have vanished

by MEGAN GANNON



A recently excavated stone (above) engraved with rays emanating from a bull's head was made some 14,000 years ago in northwestern France. The depiction shares similarities with a mural (right) at Lascaux Cave in southwestern France, where Ice Age artists painted large images of animals beginning around 20,000 years ago.

ACROSS THE RIVER from the port town of Brest in western Brittany, a quartzite outcropping rises above a forested coastline dotted with stately homes. Known as Rocher de l'Impératrice, or "Rock of the Empress," in honor of Napoleon III's wife Eugenie, it was the home of hunter-gatherers who lived in a rock shelter nestled below its cliffs some 14,000 years ago. Sea levels then were approximately 300 feet lower and the site was about 60 miles inland. The view from the shelter took in a wide open steppe dotted with junipers and birches, where horses, elk, and smaller animals gathered near the region's rivers.

For the prehistoric people who sought refuge in the shelter towards the end of the last Ice Age, this was a rapidly evolving landscape. Europe was undergoing dramatic environmental changes. The glaciers that once covered the northern part of the continent were retreating. Tundras were transforming into grasslands and forests. The vast herds of animals adapted to the cold, such as reindeer, which humans once relied upon for food, were disappearing from their old habitats. Bands of hunter-gatherers were expanding into unfamiliar places. The tools they made were changing, too. Whether in response to new hunting pressures or due to new cultural influences, people began to make smaller, simpler tools that were unlike the finely crafted





A quartzite outcropping known as Rocher de l'Imperatrice, or "Rock of the Empress," rises above the banks of France's Elorn River. Here, archaeologists are exploring a rock shelter where they have unearthed engraved stone tablets made after the end of the last Ice Age.

spear points and harpoons made by the Paleolithic hunters who had flourished during the preceding eras.

This transitional period in northwest Europe, which lasted from roughly 14,000 to 10,000 years ago, is called the Azilian. Archaeologists have long believed it was distinguished not only by changing tool types but also by a dramatic change in the kind of art people made. The preceding Magdalenian period is renowned today for murals such as those that decorate the walls of Lascaux Cave in France and Altamira Cave in Spain. These often depict herds of animals in motion, some galloping across the landscape, others swimming across rivers. The Magdalenian artists rendered their depictions of the world around them with a kind of faithful naturalism that still moves observers. The artists of the succeeding Azilian culture, by contrast, are known today mainly for the small pebbles they painted with red spots and abstract geometric designs. These simple depictions, coupled with the disappearance of figurative art and a change in tool technology, led archaeologists to conclude that the Azilian period came as a sudden rupture with the Magdalenian, perhaps catalyzed by the rapidly warming climate and disappearance of big game that occurred at the end of the last Ice Age.

Artistically at least, the Azilian people seemed to have lived in a relative dark age compared with their Magdalenian forebears. "The term 'Azilian' was for a long time considered

pejorative," says University of Nice Sophia Antipolis archaeologist Nicolas Naudinot. Now, the discovery by Naudinot of naturalistic Early Azilian depictions at Rocher de l'Imperatrice is offering a new perspective on these people and their art. Contrary to what archaeologists once thought, the Azilians who lived in what is now far western France seem to have maintained traditions that were believed to have died out at least a thousand years earlier. "These terms, 'Magdalenian' and 'Azilian,' they're late nineteenth-century terms that archaeologists invented," says University of New Mexico archaeologist Lawrence Straus. The subtle depictions created by the Azilian artists of Rocher de l'Imperatrice underscore that names bestowed on cultures by scholars thousands of years after the fact don't always capture the reality of the past.

IN 1887, EDOUARD PIETTE, then one of France's most prominent prehistorians, ventured into Mas d'Azil, a cave system with a vast, river-carved tunnel in the Pyrenean foothills in southern France. Bones had been discovered inside the cave during road construction, and Piette's subsequent excavations yielded rich archaeological deposits. The study of the Paleolithic period was still in its infancy, and archaeologists were just starting to learn about the nomadic hunter-gatherers who witnessed the waning days of the last Ice Age in Europe. The paintings inside the nearby Lascaux Cave had yet to be

discovered, and the age of the artwork from Altamira Cave was still being hotly debated. French scientists had only recently developed a chronological system to divide the Paleolithic into distinct cultures (see “Art of the Late Paleolithic Cultures in Europe,” below), based on their artifacts, with the Magdalenian being the final stage before, they believed, humans left Europe altogether. “Before Le Mas d’Azil, French prehistorians thought there was a hiatus, with Europe having been abandoned at the end of the Ice Age only to be repopulated during the Neolithic by people from the Near East,” Straus says. “Le Mas d’Azil filled the hiatus.”

At Mas d’Azil, Piette found portable works of art he attributed to the Magdalenian period, including a small but expressive sculpture of a horse’s head made from reindeer antler, and an atlatl, or spear-thrower, carved in the shape of a fawn and two birds. Piette also made another important discovery. He identified a thick level between the Magdalenian layers and the later Neolithic layers in the cave’s soil. This middle layer contained the remains of fauna and flora that flourished during more temperate times than the Magdalenian period. It had no Magdalenian-style carvings, but rather hundreds of pebbles painted in red ochre, and sometimes engraved with simple geometric designs such as lines, zigzags, and triangles. He attributed this layer to a previously unknown culture, which he named the Azilian, after Mas d’Azil. The Azilian became synonymous with this abstract art, as well as small, scrappy tools, including curved projectile points made of flint and harpoons crafted from red deer antler.

In the 1980s, similar tools were found at Rocher de l’Imperatrice after climbers disturbed the site. Naudinot first learned about the discovery in 2008, and carried out a study of the artifacts unearthed in the rock shelter. He attributed the flint tools to the Early Azilian, a period that was unknown in northwestern France at the time. In 2013, he began systematic excavations at the site, which continue to the present day.

On a July afternoon during their first season of digging, Naudinot and his colleagues found a palm-sized schist tab-



Two decorated pebbles (each seen from above and from the side) are examples of art typical of the Azilian period, which lasted from about 14,000 to 10,000 years ago.

ART OF THE LATE PALEOLITHIC CULTURES IN EUROPE





The archaeological layers dating to the Azilian period at Rocher de l'Imperatrice were buried under large stone blocks weighing as much as 40 tons that had fallen from the rock shelter's ceiling.

let in the shelter. It was not inscribed with simple geometric lines, but rather with a skillfully drawn portrait of an aurochs, an extinct species of wild cattle. On the reverse, they found another realistic bull rendered in profile, with rays emanating from its head as if it were giving off light. No other such “shining” animal is known in European Paleolithic art, and these figurative carvings closely resemble Magdalenian depictions of animals. “As archaeologists, we are used to seeing archaeological materials just as data,” Naudinot says. “But the discovery was quite special. Everybody sat around passing the slab hand to hand without talking.”

Since that first field season, Naudinot and his team have returned to Rocher de l'Imperatrice every summer. They have since found more than 80 fragments of engraved tablets. The artwork suggests that the Magdalenian culture didn't come to an abrupt end, but that its artistic traditions continued into the Azilian period in at least some corners of western Europe. “It's an extraordinary find, in part because of the location,” says Straus. “Brittany is sort of marginal to the Magdalenian world, and these plaques look

extremely Magdalenian. It shows a continuity between the Magdalenian and the Azilian.”

UNEARTHING THE PLAQUES from Rocher de l'Imperatrice has not been easy. The archaeological layers at the site were preserved, in part, by huge blocks, some weighing more than 40 tons, that had fallen from the rock shelter's ceiling. Those boulders make for a challenging excavation—Naudinot's team spent half of their 2017 campaign cracking the blocks using a pneumatic drill and quarrying tools, then lifting the fragments out of the ground with winches and hoists attached to the surrounding oak trees. Inside the rock shelter, the archaeologists have collected thousands of Azilian flint tools. Flint is not a local material and had to be acquired through trade or mined from outcroppings at least 60 miles away. Most of the tools were used to pro-



Azilian stone tools found at Rocher de l'Imperatrice include a blade (far left) and scraper (top left) used for butchering, as well as a curved projectile point (bottom left) used for hunting.



One of the engraved stone tablets from Rocher de l'Imperatrice depicts a horse. The Azilian artist who created the work rendered details such as the animal's nostrils, mane, and tail in a naturalistic style.

cess meat or as spear points, suggesting the site served as a hunting camp. The soil at the site is too acidic to preserve bone and other organic materials. As a result, many questions about Azilian life at Rocher de l'Imperatrice, such as the seasons during which the site was occupied and what kind of hunting strategies the visitors employed, are, for now, unanswered.

As they have continued to dig, Naudinot and his team have found stone slabs with depictions of horses and fragments showing what could be necks, backs, and legs of animals in silhouette. The etchings seem to strive for realism, featuring fine details such as nostrils, and include lines and crosshatching to represent the animals' coats. The team now has more than 80 tablet fragments, some less than half an inch long, that they are working to fit together, in order to re-create what might have once been larger depictions of multiple animals. The team has found no geometrically painted pebbles of the kind associated with other Azilian sites, only traces of black pigments in the engravings of some slabs.

The artworks at Rocher de l'Imperatrice are not entirely unprecedented. In 2000, at the Late Magdalenian site of Etioles in the Paris Basin, archaeologists found a large pebble engraved on each side with naturalistic images of horses. Another French site, Abri Murat, which was excavated in the 1920s and then again in the 1980s, contained Early Azilian pebbles with etchings of deer, goats, horses, and bison in silhouette. The Abri Murat artifacts were the first to suggest that figurative art might have persisted into the beginning of the Azilian. "The discovery of the rich corpus of art at Rocher de l'Imperatrice confirms this hypothesis," Naudinot says.

Excavations at Rocher de l'Imperatrice have now produced the largest known collection of Early Azilian art, and it is one

of the very few sites that could allow scholars to begin to study the symbolic system of the period. For instance, it's tempting to think that the rays surrounding the bull's head might have had some spiritual meaning or signify that the aurochs had special importance in Azilian culture. Naudinot says evidence is too scarce at the moment to support such an interpretation, and he doesn't think the function of these objects is something that will ever truly be accessible to archaeologists. "Early Azilian sites are still rare in France," he says. "We don't know—and I think we'll never know—what the meaning of this art was." While Magdalenian-style art evidently survived into the Early Azilian period, at some point there was a shift, with abstract designs becoming the dominant mode of expression. This might mean that specially trained artists

became scarcer, or that people moved from camp to camp more often, leaving less time to devote to creating complex, large-scale artwork. It's also possible that by simplifying their art, people freed up more time and energy for other activities that have not left traces in the archaeological record.

The evidence at Rocher de l'Imperatrice also shows that technological and artistic systems don't always change at the same pace. "Cultural change is not a global phenomenon or a package," Naudinot says. By the Azilian period, small bands of



These engraved stone fragments are two of more than 80 that archaeologists have unearthed at Rocher de l'Imperatrice.

hunter-gatherers across Europe were adapting to landscapes radically different from those their Magdalenian ancestors had lived in. They adopted new hunting strategies, made new types of tools, and ventured into new lands as the ice sheets receded, expanding the range of territory they could exploit. Yet, even though the technology that allowed Magdalenian hunter-gatherers to master their world had changed, their art and beliefs did not vanish overnight. "You get the sense that the belief system, which is presumably encoded somehow in cave art, hangs on even though their way of life is changing very rapidly, that those belief systems die hard and slowly," says Straus. "They're maintaining the iconography. They're maintaining the means of expression. This common set of beliefs reflected in personal ornaments or in portable artworks and cave art—that's what holds their expanding world together." ■

Megan Gannon is a journalist based in Berlin, Germany.





A 2018 image shows the newly excavated remains of the ancient theater at Akragas (modern Agrigento) in Sicily.

Sicily's Lost Theater

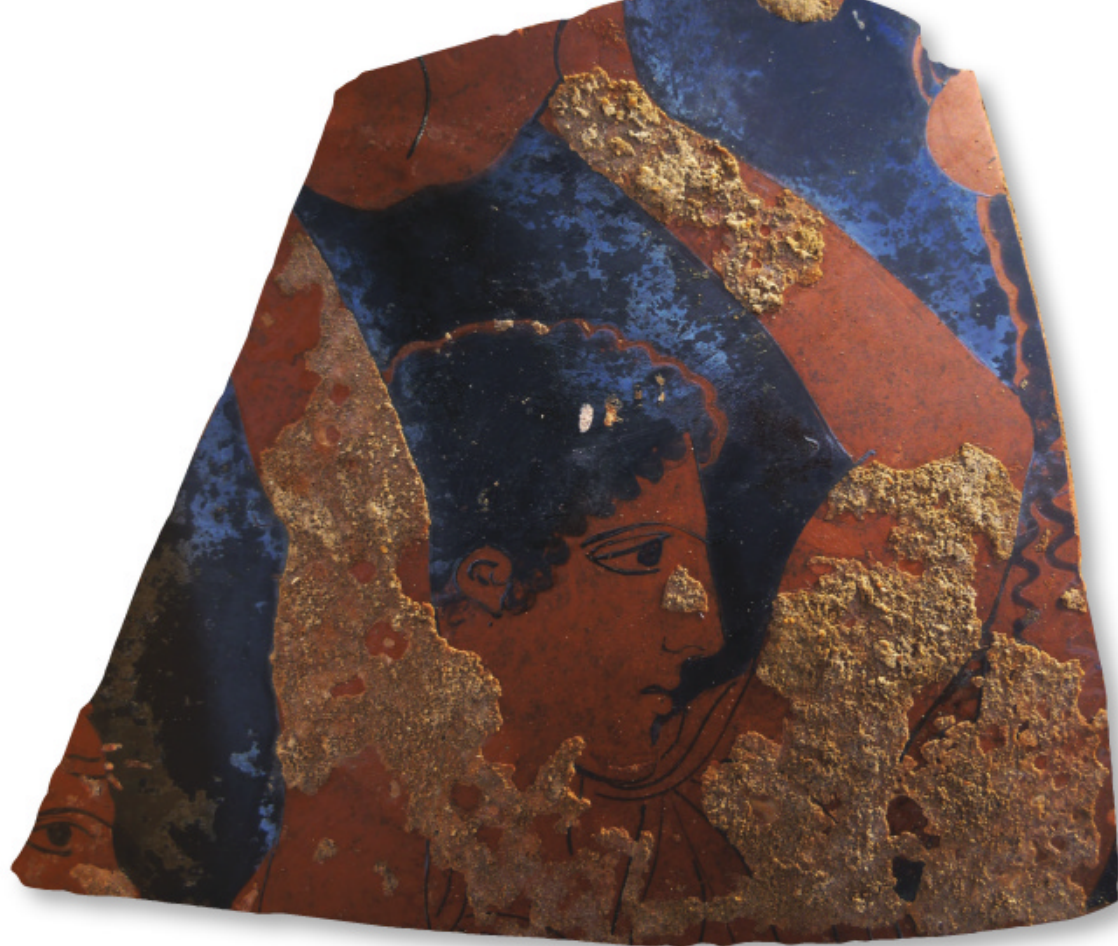
Archaeologists resume the search for the home of drama in a majestic Greek sanctuary

by MARCO MEROLA

GOING TO THE THEATER was an essential part of ancient Greek civic and religious life. Plays such as the tragedies of Aeschylus and Euripides, the comedies of Aristophanes and Menander, and likely numerous other works that have not survived, were regularly staged at religious festivals. Masked actors and a chorus whose role was to comment on the play's action in song, dance, and verse entertained festivalgoers and paid honor to the gods. "Since the very beginning of Greek civilization, a theater was always a religious building housed in a sanctuary," says archaeologist Luigi Maria Calì of the University of Catania. "In the Greek world, everything was related to holiness, and theaters were built in sacred areas."

At first, theaters were likely just open areas or hillsides with no *cavea*, or tiered seating area. From about the sixth to the fourth centuries B.C., says Calì, Greek theaters were built of wood. Sophocles' *Oedipus at Colonus* and *Electra*, for example, were performed in wooden theaters. Beginning in the fourth century B.C., theaters were often built in stone. "When theaters were monumentalized, they became a crucial part of cities around the Greek world," Calì says. Though nearly all traces of the wooden structures have been lost, remains of ancient Greek stone theaters—almost 150 have been discovered to date—still stand from Italy to the Black Sea, at sites such as Epidaurus in the Greek Peloponnese, the sanctuary of Apollo at Delphi, and Taormina in Sicily. As one of the most important cities in the ancient Mediterranean during the classical era and home to one of its grandest sanctuaries, Akragas (now Agrigento), on Sicily's southern coast, must have had a theater as well. But no ancient sources mention one there and, until recently, no archaeological evidence of such a structure had ever been found.

THE CITY-STATE OF AKRAGAS was founded in 582 B.C. by Greeks from Gela, a flourishing Sicilian colony some 40 miles away that had been established a century earlier. Akragas reached its zenith under the tyrant Theron, who ruled from about 489 to 472 B.C. In 480 B.C., Theron and his ally and brother-in-law Gelon, ruler of the powerful colony of Syracuse, were part of a coalition that defeated the Carthaginians at the Battle of Himera, ending, temporarily at least, the Carthaginians' threat to take over Sicily. To celebrate their victories, Akragas' rulers launched a series of monumental building projects, including construction of the immense temple dedicated to Olympian



Artifacts from various periods have been unearthed in the theater, including (clockwise from above): a fragment of a red-figure vase likely dating to the 4th century B.C.; a ca. 4th-century B.C. figurine of a woman playing a double flute, or *aulos*; an ointment jar, or *unguentarium*, dating to the 3rd or 2nd century B.C.; a nose and eye from a 4th-century B.C. terracotta theater mask with pigment still visible; a 4th-century B.C. terracotta mask depicting a Gorgon; and a locally minted classical coin depicting a crab.

Zeus, which, at 340 by 160 feet, was the largest Doric temple in the Greek world. Akragas was razed by the Carthaginians in 406 B.C. and then left largely abandoned until 338 B.C., when the Carthaginians were defeated and the city was rebuilt.

A century later, Akragas was the site of the first pitched land battle of the Punic War, which pitted the resurgent Carthaginians against the newly expanding power of Rome. The Roman victory in 262 B.C. signified the beginning of Roman influence in Sicily. Later, Akragas became Roman Agrigentum. Throughout its history, when the city thrived, building projects and religion did, too. Temples were regularly constructed and dedicated to gods and demigods including Hercules, Zeus, Hera, Athena, Concordia, Hephaestus, Castor and Pollux, Demeter and Persephone, and Isis.

The search for Akragas' theater began almost a century ago when archaeologist Pirro Marconi directed a large archaeological campaign funded by his English patron, Alexander Hardcastle. Hardcastle was a captain in the British Navy who became fascinated with the site while living in a home known as the Villa Aurea, located between two of Agrigento's still-standing temples. Until the Englishman died in 1933, he sponsored Marconi's work. The only written source available to guide Marconi in his search for the theater was *De Rebus Siculis Decades Duae*, the first printed book on the history of Sicily, written in the middle of the sixteenth century by Dominican monk Tommaso Fazello. Fazello had located what was left of the theater "not very far from San Nicolò church," adding, "I barely recognize its foundations." Marconi, however, failed to uncover significant evidence of the structure, ending the pursuit of Akragas' theater for the next eight decades.

It wasn't until the summer of 2015, when Maria Concetta Parello, one of the supervising archaeologists of Agrigento's Valley of the Temples archaeological park, decided to investigate the southern boundary of the agora, the ancient city's main market and gathering place, that the hunt was renewed. About 300 yards from San Nicolò church, experts from the University of Molise and Italy's Institute for Applied Technology were using 3-D tomography to explore deep underground. "At the end of the workday they told us about some height differences on a steep slope," says Parello. "Specifically, they saw some strange curved lines in a nearby limestone embankment. We asked a geologist what he made of that, and he said this type of curve definitely wasn't natural. We thought it might be the theater and became very excited." After a short walk to the top of the slope, Parello also noticed some stone blocks arranged in a curvilinear shape. "They were always there, but we had never really seen them before," she says. Although it would take them several more months of work to be certain—during which time they refrained from calling the structure "the theater" for fear of jinxing their find—Parello and her team had finally located Akragas' missing theater. Marconi, it turns out, hadn't found the structure because he had been looking in the wrong place.

OVER THE PAST THREE field seasons, Parello's team has continued to uncover what remains of Akragas' stone theater. They have identified two phases, one

dating to the fourth or third century B.C., and the other to the second century B.C., when the building's diameter was expanded from about 213 feet to more than 300 feet by the Romans. "This makes it one of the biggest theaters in Sicily, comparable to those in Syracuse and Catania," Caliò says. The project has been complicated by the fact that, since at least the thirteenth century, locals have been disassembling the structure stone by stone and using the blocks to build the churches and private buildings of medieval and modern Agrigento. When the team reached the level of the foundation trenches for the theater's west side, for example, nearly all the foundation stones were gone. However, the surviving remains indicate that the foundation could have supported walls up to 30 feet tall. Thus far, the team has fully excavated the *summa cavea*, the highest part of the stands, where commoners sat. In the future, they hope to uncover the *ima cavea*, where the most coveted seats reserved for elders and high-ranking individuals were located.

In addition to the remains of the theater's structure and seats, Parello and her team have uncovered numerous votive artifacts in and around the structure, including a deposit of objects related to a good-luck ritual. Most of these are vessels for everyday use, such as a *guttus*, a kind of baby bottle, and *unguentaria*, small terracotta vessels used to hold perfumed ointment. The team has also unearthed many fragments of high-quality fourth- to third-century B.C. black-glazed pottery, as well as three coins, one of which is well preserved. This coin, which dates from the classical period and was minted in Agrigento, depicts an eagle, the symbol of Zeus, with folded wings on the front and a crab on the back. A small statue dating to the fourth or third century B.C. depicts a musician playing the double flute, or *aulos*, in a style typical of Greco-Sicilian artists. Although only fragmentary, an unearthed terracotta theatrical mask still shows the original colored paint. A better-preserved fourth-century B.C. mask depicts a fearsome Gorgon.

Atop a hill not far from the stone theater, the team made a surprising find: 20 holes dug into the earth to hold wooden poles. "Our hypothesis is that this is evidence of an older, rectangular wooden theater that was replaced by the one made of stone," says Caliò. "This confirms what we know about the architecture of Greek theaters." Recently, archaeologists excavating at the base of the Acropolis in Athens identified holes similar to the ones found in Agrigento. "These holes seem to have belonged to the Theater of Dionysus, which collapsed in the fifth century B.C.," Caliò explains. "We believe that theater was contemporaneous with Agrigento's wooden theater."

Parello's excavations will resume in the spring of 2019, when she hopes to find the stone theater's orchestra. "After investigating with a magnetometer, we know there are some unidentifiable structures about 12 feet below the surface," she says. "It's probably the orchestra. I can't wait to see what it looks like. And it would be great if we could find the original stage." ■

Marco Merola is a journalist in Rome. For a slideshow about Agrigento's Hellenistic and Roman residential quarters, go to archaeology.org/agrigento.



*Discover life-changing
freedom and fun*



The Zinger folds to a mere 10 inches.

“With my Zinger Chair, I can go anywhere and everywhere I want!”

More and more Americans are reaching the age where mobility is an everyday concern. Whether from an injury or from the aches and pains that come from getting older—getting around isn’t as easy as it used to be. You may have tried a power chair or a scooter. The **Zinger** is NOT a power chair or a scooter! The **Zinger** is quick and nimble, yet it is not prone to tipping like many scooters. Best of all, it weighs only 47.2 pounds and folds and unfolds with ease. You can take it almost anywhere, providing you with independence and freedom.

I can now go places and do things that I wasn’t able to go or do before. It has given me a new lease on life and I am so happy I found it!

—Dana S., Texas

Years of work by innovative engineers have resulted in a mobility device that’s truly unique. They created a battery that provides powerful energy at a fraction of the weight of most batteries. The **Zinger** features two steering levers, one on either side of the seat. The user pushes both levers down to go forward, pulls them both up to brake, and pushes one while pulling the other to turn to either side. This enables

great mobility, the ability to turn on a dime and to pull right up to tables or desks. The controls are right on the steering lever so it’s simple to operate and its exclusive footrest swings out of the way when you stand up or sit down. With its rugged yet lightweight aluminum frame, the **Zinger** is sturdy and durable yet convenient and comfortable! What’s more, it easily folds up for storage in a car seat or trunk— you can even gate-check it at the airport like a stroller. Think about it, you can take your **Zinger** almost anywhere, so you don’t have to let mobility issues rule your life. It folds in seconds without tools and is safe and reliable. It holds up to 265 pounds, and it goes up to 6 mph and operates for up to 8 hours on a single charge.

Why spend another day letting mobility issues hamper your independence and quality of life?

Zinger Chair®

Call now and receive a utility basket absolutely FREE with your order.

1-888-802-0210

Please mention code 111249 when ordering.



Just think of the places you can go: • Shopping • Air Travel • Bus Tours
• Restaurants— ride right up to the table! • Around town or just around your house

Zinger is not a wheelchair or medical device and is not covered by Medicare or Medicaid.
© 2019 firstSTREET for Boomers and Beyond, Inc.

This aerial view shows a section of the Caprock Escarpment, a cliff formation in the Texas Panhandle, on land belonging to the former U-Lazy-S Ranch, part of which is now the Macy Ranch.



LETTER FROM TEXAS

ON THE RANGE

Excavations at a ranch in the southern High Plains show how generations of people adapted to an iconic Western landscape

by **ERIC A. POWELL**

During the summer roundup, rancher Bob Macy doesn't saddle up a horse to move his cattle into the pens next to Macy Ranch headquarters, a collection of a dozen low-slung buildings some 30 miles southeast of Lubbock, Texas. He is much more likely to wrangle his herd from his Bell JetRanger helicopter, which he pilots with the same calm assuredness of a cowboy who has spent decades in the saddle. A descendant of the legendary cattleman

John Slaughter, Macy runs one of four ranches that comprise the former U-Lazy-S Ranch, which covered 83,000 acres straddling the edge of the Llano Estacado, or "staked plains," one of the largest mesas in North America. Before Slaughter bought the spread in 1902, it was known as the Square and Compass Ranch, and was one of the earliest cattle ranches in the southern High Plains. Today the region is dominated by rows of gleaming 30-story-tall wind turbines,

massive green cotton fields, and continuously pumping oil rigs.

The view from Macy's helicopter as he takes off from ranch headquarters features the far-off turbines and vast modern farms of the Texas Panhandle. As he pilots his craft over the 300-foot-tall cliffs known as the Caprock Escarpment that divide the level plains of the Llano Estacado from the rugged rolling plains below, he begins to point out sections of the ranch that formed the backdrop to events that played

LETTER FROM TEXAS

out long before the area became a reliable engine of the modern Texas economy. As he speeds the helicopter along the perimeter of the former U-Lazy-S Ranch, he explains that this rugged landscape conceals a network of sites and artifacts left behind by Native Americans, buffalo hunters, and early cowboys, whose stories are the raw material that forged the most iconic imagery of the American West. With Macy's support, a team of archaeologists from the Lubbock Lake Landmark, a unit of the Museum of Texas Tech University, is now surveying and unearthing the remains these people left behind. "What we have here is a unique opportunity to explore the history of a single cattle ranch," says archaeologist Eileen Johnson, director of the Lubbock Lake Landmark. "But it also helps us understand the larger narrative of how people lived here in the southern High Plains."

Since 2005, the team, led by archaeologist Stance Hurst, has surveyed hundreds of acres on the Macy Ranch and the other ranches

that make up the former U-Lazy-S. Among the many sites they have found are Apache and Comanche encampments, shelters where buffalo hunters took refuge during harsh winters, and even a camp made by nineteenth-century Square and Compass cowboys. "You can't look at any one of these historical eras in isolation," says Hurst. "We have a chance to see how they work together, how waves of different people occupied this landscape."

These disparate periods in the ranch's history are memorialized by a series of rock art panels at Cowhead Mesa, an isolated, 100-foot-tall section of the Llano Estacado about five miles south of Macy Ranch headquarters. Here, the people who once called the southern High Plains home used the sandstone outcropping of the mesa as a canvas to record important moments. "The panels at Cowhead Mesa are a kind of map to the history of this landscape," says Hurst. Sometime in the late seventeenth or early eighteenth century, nomadic



This photograph taken in the early 20th century shows U-Lazy-S Ranch cowboys and a cook gathered around a chuck wagon. The U-Lazy-S cattle brand is painted on the side of the wagon.

Native Americans, probably Apache, engraved petroglyphs here that seem to describe a dramatic historic event. They show two buildings topped with crosses—resembling Spanish colonial churches—one of which has been set on fire, along with stylized human figures that may represent priests. Hurst, who has studied the panels extensively, says these are likely depictions of Spanish missions in nearby New Mexico that were set aflame during the 1680 Pueblo Revolt (See "The First American Revolution," archaeology.org/pueblor revolt). The Apache are known to have regularly interacted with the Pueblo communities who rebelled against Spanish rule, and may have chronicled this event with these rock art figures.

Nearby are images probably engraved sometime between the mid-1700s and the 1870s, when the Comanche dominated the southern Plains, including what became the Texas Panhandle. These depict buffalo, tepees, horses and riders, and figures fighting with weapons, all in a stylized form associated with Comanche artists.



In the center of a rock art panel at Cowhead Mesa on the Macy Ranch is an image of a building, perhaps a Spanish mission, probably engraved by Apache. The triangle to the building's left depicts a Comanche tepee.



Once the Comanche were confined to reservations in nearby Oklahoma, the Anglo-Americans who flocked to the area couldn't resist adding their own individual stamps to Cowhead Mesa.

Near Comanche figures, a cowboy inscribed a Masonic symbol that was the Square and Compass Ranch's cattle brand from the early 1880s until the ranch became the U-Lazy-S in 1902.

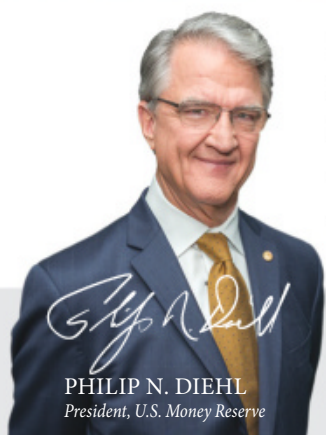
A cowboy named R. Knolles also engraved his signature here in careful, neat handwriting next to the date 1881.

(continued on page 60)

U.S. GOVERNMENT GOLD RELEASE

Analysts predict current gold prices to double. Now is your chance to own U.S. government-issued legal tender gold coins priced at cost, free of dealer markup—one of the best gold deals available.

One of America's largest gold distributors today announces special, rock-bottom pricing on official U.S. government-issued American Eagle Gold Coins from the United States Mint. For an extremely limited time, U.S. Money Reserve is offering you the opportunity to purchase these government-issued gold coins at the incredible at-cost price of only \$131.00 each—one of the best gold bullion deals available anywhere today. Call now!



- ✓ Rock-Bottom, At-Cost Gold Pricing
- ✓ Official Government-Issued Legal Tender
- ✓ Authorized by Congress for Weight & Purity
- ✓ Struck from Gold Mined in the U.S.
- ✓ Extremely Limited Time Offer

*The only gold company
led by a former U.S.
Mint Director.*

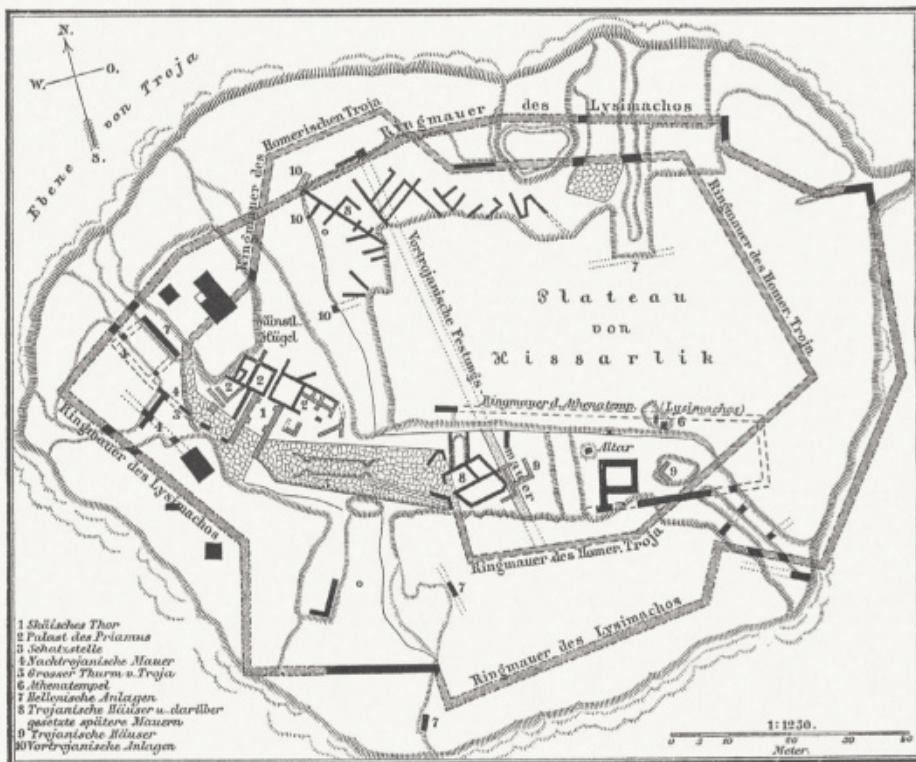
**U.S. MONEY
RESERVE**
America's Gold Authority®

1-888-515-6093

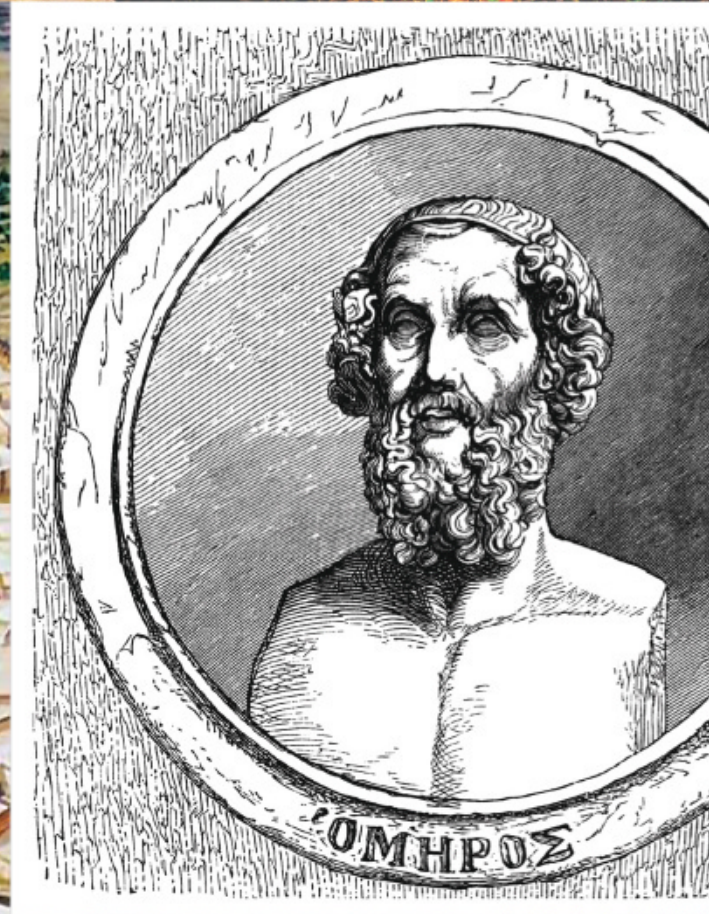
VAULT CODE: ARC16

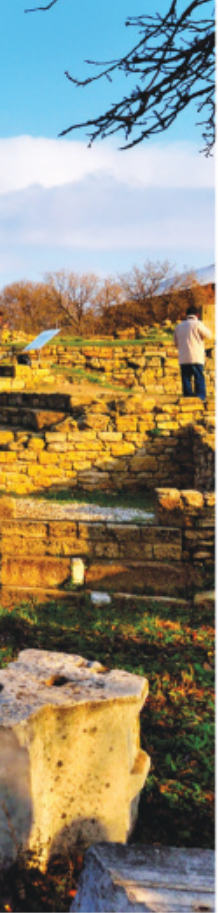


©2019 U.S. Money Reserve. The markets for coins are unregulated. Prices can rise or fall and carry some risks. The company is not affiliated with the U.S. Government and the U.S. Mint. Past performance of the coin or the market cannot predict future performance. Prices may be more or less based on current market conditions. Special offer is strictly limited to only one lifetime purchase of 10 below- or at-cost coins (regardless of price paid) per household, plus shipping and insurance (\$15-\$35). Minimum order of 5 coins. Price not valid for precious metals dealers. All calls recorded for quality assurance. 1/10-oz. coins enlarged to show detail. Offer void where prohibited. Offer valid for up to 30 days or while supplies last. Coin dates our choice.



Plan von Hissarlik (Troy).



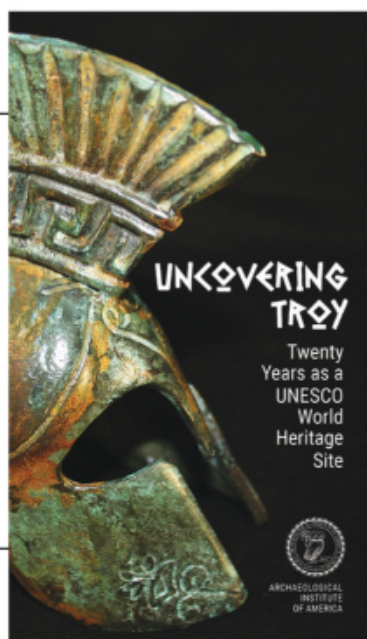


ARCHAEOLOGICAL INSTITUTE OF AMERICA

THE YEAR OF TROY

The year 2018 marked the 20th anniversary of the ancient city of Troy's listing as a UNESCO World Heritage Site. Located in the Çanakkale province in Turkey, Troy is the famous site of the Trojan War as first described in Homer's *Iliad*. Over the centuries, the epic's larger than life characters - Achilles, Hector, Paris, Helen, Odysseus, Agamemnon, and others - have become part of many cultures.

The Trojan War, however, is only a part of Troy's rich history. Archaeologists have found nine successive cities on the site of Troy, each built upon the ruins of earlier settlements. From the time of its founding circa 3000 B.C., the city has been home to the Greeks, Romans, and other civilizations, each of which has left physical evidence of its occupation. Today, Troy's ruins are an archaeological destination visited by thousands every year.



In recognition of this unique celebration, the AIA has created *Uncovering Troy*, a commemorative publication on the history and archaeology of the ancient site.

To receive your copy of *Uncovering Troy*, simply join the AIA or renew your membership between February 15 and April 30, 2019.

Go to:
www.archaeological.org/membership#rates

The AIA thanks Richard C. MacDonald for his generous support of the Year of Troy Project.

LETTER FROM TEXAS

(continued from page 57)

And, in 1955, a proud Texan carved into the mesa's limestone the boast that he had killed "4 CYOTES and 2 LOBO WOLFS" followed by the words "LONG LIVE TEXAS."

Cowhead Mesa wasn't just a convenient, dramatically positioned canvas. People were also drawn to the easily defended top of the mesa. Here, Hurst and his team discovered a hearth that radiocarbon dating shows warmed an Apache band sometime after the fifteenth century, when groups of Apache first reached the southern High Plains after migrating from their homeland in present-day Canada.

Some seven miles from the Macy Ranch headquarters, above a seasonal stream known as Spring Creek, Museum of Texas Tech University research associate Doug Cunningham identified the remains of an encampment that might have been occupied over many years. Excavation here revealed hearths, stone tools, and pottery that were the telltale signs of a large, seasonal Apache camp. Perched on the Caprock Escarpment, the site would have given the Apache access to both the resources of the Llano Estacado and the rolling plains that lie below the escarpment.

The arrival of Spanish horses on the High Plains in the seventeenth century helped the Apache dramatically increase their range, but it also led to the arrival of the Comanche, a nomadic people whose equine mastery allowed them to sweep into the southern High Plains from their homelands in Colorado and quickly displace the Apache, who were driven south and west.

While on survey with Hurst on a section of the Caprock Escarpment known as Buffalo Point, Cunningham discovered an isolated example of a metal arrowhead very likely fashioned by a Comanche warrior from scrap metal. And at another site on property



A excavation uncovered the lining of a "half-dugout," a semisubterranean shelter constructed by buffalo hunters in the 1870s on land that is now part of the Macy Ranch.

neighboring the Macy Ranch, the team located traces of a small Comanche hunting camp. Here, they found five metal arrowheads and three copper bracelets. These simple copper bands were likely worn by Comanche women or used for trading. "We know from the State of Texas government inventories that trading posts kept strings of copper to trade with the Comanche," says Hurst. "They were clearly a desirable commodity."

During the eighteenth and nineteenth centuries, people from the Spanish—and later Mexican—territory to the west ventured into the grasslands of the High Plains to trade with the Comanche. The *pastores*, shepherds of neighboring New Mexico, took their flocks into the High Plains to graze. Since wealthy landowners monopolized grazing land in central New Mexico, less well-off shepherds turned to the vast grasslands of Texas, Oklahoma, and Colorado to sustain their flocks. Hurst believes that stone corrals he and his team have discovered in the southeast section of the former U-Lazy-S Ranch may have served as sheep pens at a

seasonal outpost used by a group of *pastores*. "I think it is very likely this site dates to the nineteenth century and that the *pastores* were there," says Hurst. "There's probably not much physical evidence left. These were people who were walking from New Mexico, so they didn't carry much with them." But the corrals serve as a reminder that people as different as the Comanche and the *pastores* could share the landscape.

By 1874, the U.S. Army had forced most Comanche onto reservations in Oklahoma, leaving the plains open for groups of buffalo hunters who inaugurated a years-long slaughter that resulted in the almost complete eradication of these animals from the High Plains. While surveying the ranch by helicopter in 2012, Macy and Cunningham spied the remains of a chimney at a previously unknown site. Hurst and his team later identified two buildings here that were built by the Woody brothers, freelance buffalo hunters whose stories

(continued on page 62)

CLASSIFIEDS

BOOKS

RAVEN MOON. A museum curator vanishes and her image appears in one of the standing stones of Avebury. A Paranormal Archaeological Mystery by Deborah Cannon. The sequel to **RAVEN'S BLOOD.** Available from amazon.com

FIELD SCHOOL

28 years and counting...

Is 2019 your year to join our research team in Blue Creek, Belize?

4 sessions / May to July

+ BONUS STUDY OPTIONS!

Call or visit our website for details – and find us on Facebook!

maya
RESEARCH PROGRAM

817-831-9011
mayaresearchprogram.org

OF INTEREST TO ALL

TheMayanRuinsWebsite.com An informative/educational website detailing over 60 Mayan ruins with photos and in-depth descriptions.

TRAVEL & TOURS

ARCHAEOLOGICAL TOURS:

San Juan River Trip: Visit remote archaeological sites on downriver adventure. **Ohio Moundbuilders:** Visit awe-inspiring Hopewell and Adena mounds and earthworks. archaeologicalconservancy.org/tours Archaeological Conservancy, Albuquerque, NM (505) 266-1540. tours.tac@gmail.com

Canyonlands Field Institute Archaeology and Native Culture Trips in Utah. Lodge, river, hiking options. Small groups, guest experts. cfimoab.org (435)259-7750

MACHU PICCHU & CUZCO:

Explorations since 1992! Inca archaeology, Spanish colonial history, Quechua culture, Andean ecology. Amazon, Nazca, Titikaka extensions. (800)446-9660.

AdventuresofDiscovery.com



Visit Costa Rica with Caravan; Friendly land of democracy & rare natural beauty.

Costa Rica

9-Day Tour \$1295

Volcanoes, Rainforests, Beaches

Visit Costa Rica on a fully guided tour with Caravan. All hotels, all meals, and all activities included. Tax & fees extra. The #1 in value. *Call now for choice dates.*

Panama & Canal 8-Days \$1295

FREE Tour Catalog

1-800-CARAVAN, Caravan.com

caravan
FULLY GUIDED TOURS SINCE 1952



Like us on facebook and follow us on twitter for daily updates on the latest discoveries

facebook.com/archaeologymag
twitter.com/archaeologymag

Contact Info:

Karina Casines, Account Manager
karina@archaeology.org
(718) 472-3050 ext. 4905
Email materials to:
materials@archaeology.org

Photo Credits

COVER—Pictures from History/Bridgeman Images; 1—Marco Merola; 3—(clockwise from top left) Courtesy Andrew Peachey (ArchSol), Courtesy of Fairfield Foundation, Agata T. Gondek, Eitan Klein/Israel Antiquities Authority, © Frédéric Colin, University of Strasbourg; 4—Azoor Photo Collection/Alamy Stock Photo; 6—Art Resource, NY; 8—Courtesy Francisco Valdez; 9—Virginia Department of Historic Resources; 10—Courtesy of Fairfield Foundation, NUTAN/Gamma-Rapho via Getty Images, Pampuco via Wikimedia Commons; 12—© Frédéric Colin, University of Strasbourg (3); 13—blickwinkel/Alamy Stock Photo; 14—Courtesy Andrew Peachey (ArchSol), Courtesy Effie Fotos-Jones; 16—©MOLA Headland (2); 17—Eitan Klein/ Israel Antiquities Authority 18—© MOLA; 19—Wikimedia Commons; 20—Courtesy Erlin Novita/Papua Archaeological Center, ADEK BERRY/AFP/Getty Images, Faina Gurevich/Alamy Stock Photo, Courtesy Alpine Archaeological Consultants; 21—Courtesy Rejane Roure; 22—Courtesy Albina Hulda Pálsdóttir, Agata T. Gondek; 23—Courtesy Mu.Ramkumar; 24—(clockwise from top left) Photo by Richard Estrada, Courtesy Betina Magnussen, Arsty/iStock, Courtesy Nicole E. Smith-Guzmán, Courtesy Donald Byers (BICU-CIDCA); 25—Courtesy Walter Crist/Gobustan National Park, Courtesy Xing Gao, Courtesy Hiroki Obata, Courtesy Classy Yacht Charitable Trust, Thamizhparathi Maari via Wikimedia Commons; 26-27—Courtesy Dietrich Raue and Aiman Ashmawy/The Heliopolis Project; 28—Courtesy Dietrich Raue and Aiman Ashmawy/The Heliopolis Project; 29—Courtesy Dietrich Raue and Aiman Ashmawy/The Heliopolis Project, ©Look and Learn/Bridgeman Images; 30—(clockwise from top left) Novarc Images/Alamy Stock Photo, imageBROKER/Alamy Stock Photo, vincent abbey/Alamy Stock Photo, Francois Roux/Alamy Stock Photo; G M Thomas/Alamy Stock Photo; Taras Vyshnya/Alamy Stock Photo, mauritius images GmbH/Alamy Stock Photo; 31—Courtesy Dietrich Raue and Aiman Ashmawy/The Heliopolis Project; 32—Courtesy Dietrich Raue and Aiman Ashmawy/The Heliopolis Project; 35—DeAgostini/Getty Images; 36—Patricio Hidalgo/Alamy Stock Photo; 37—De Agostini Picture Library/G. Dagli Orti/Bridgeman Images, Courtesy Corey Herrmann; 38-39—Courtesy the Kerkenes Archive; 39—Courtesy the Kerkenes Archive; 40—Courtesy the Kerkenes Archive (2); 41—Courtesy the Kerkenes Archive (2); 42—Courtesy the Kerkenes Archive; 43—Courtesy the Kerkenes Archive (3); 44—Courtesy N. Naudinot; 45—Photo by Jerome CHATIN/Gamma-Rapho via Getty Images; 46—Frésillon/CNRS; 47—Didier Descouens/Wikimedia Commons (2), Photo Thomas Stephan/ © Ulmer Museum, HIP/ Art Resource, NY, Musée des Antiquités Nationales, St. Germain-en-Laye, France / Bridgeman Images, Album/Art Resource, NY, Didier Descouens/Wikimedia Commons; 48—Frésillon/CNRS, Courtesy N. Naudinot (4); 49—Courtesy N. Naudinot (3); 50-51—Giuseppe Grizzaffi; 52—(clockwise from left to right) Courtesy Parco Archeologico Valle dei Templi, Courtesy, Marco Merola, Giuseppe Cavaleri, Marco Merola, Giuseppe Cavaleri; 55—Eric A. Powell; 56—Courtesy Stance Hurst; 57—Photo Courtesy Richard Kilpatrick; 60—Eric A. Powell; 62—Photos Courtesy of the Museum of Texas Tech University (5); Courtesy Stance Hurst; 68—Rikke Caroline Olsen/The National Museum of Denmark

LETTER FROM TEXAS

(continued from page 60)

were recorded by scholars in the early twentieth century. Lying near the bottom of the Caprock Escarpment, in an alcove sheltered from the wind, Hurst and his team unearthed two “half-dugouts,” shelters with stone chimneys and floors dug into the ground that were likely covered with tarps and earth to serve as winter headquarters for the Woody brothers. Here, the team has found .50-caliber Sharps Rifle cartridges. These cartridges were produced beginning in 1872 specifically for buffalo hunting. At least one button belonging to a Union regiment uniform has been unearthed at one of the dugouts, suggesting the hunters may have also been outfitted with Civil War-era surplus military gear.

The last of the buffalo in this area were hunted out by about 1880, at which point ranchers began to move into the grasslands of the Texas Panhandle. In the summer of 2018, the Lubbock Lake Landmark team was surprised to discover a cattle brand lying near one

of the half-dugouts. It belonged to the Lindsay brothers, early cattle ranchers who worked the open ranges before the introduction of barbed wire fencing on the High Plains. The brand, together with the presence of Square and Compass Ranch fencing close to the shelters, has led the team to speculate that the shelters were initially built and occupied by buffalo hunters led by the Woody brothers, then used by cowboys working for the Lindsay brothers, and finally by Square and Compass Ranch hands. “It’s likely that some of the ranch hands were former buffalo hunters,” says Hurst. “The end of the buffalo hunting

era didn’t mean the buffalo hunters disappeared. Some probably stayed on and took the only work they could get, which would have been working for the ranchers.”

Though early cattle ranching was critical to the development of the United States, its physical footprint is ephemeral and often overlooked by archaeologists. And as is the case with most early ranches in the High Plains, little survives today of the Square and Compass. But near the banks of one of the ranch’s many seasonal creeks, Hurst and his team have discovered a site that offers a rare glimpse of a single season of a ranch in the southern High Plains.

While recording a prehistoric site in 2008 that lies some five miles northwest of the Macy Ranch headquarters, the team discovered a nineteenth-century metal fork in a gully nearby. They decided to use metal detectors to survey the edge of the gully. “It was pretty amazing,” says Hurst. “It was immediately apparent there was a high concentration of artifacts there.” Eventually, the team unearthed such classic cowboy

equipment as a coffee mill and a coffee pot, along with eating utensils, buttons, and horseshoes. They also discovered traces of barbless metal wire, or slick wire, embedded in juniper trees not far from the cluster of artifacts. Puzzled, they asked ranch owner Bob Macy for his opinion. “There was no question in my mind,” says Macy. “We use slick wire today when we want to corral horses.” The wires were traces of a temporary horse corral. And the artifacts themselves were clustered in such a tight concentration because they had been dropped around a chuck wagon. What the archaeologists had found was



Artifacts recovered from a late 19th-century roundup site on the Macy Ranch include objects used by cowboys: (clockwise from left top) a shell button, a horseshoe, a crumpled coffee pot, a fork, and fragments of a coffee mill.

ADVANCED HEARING AID TECHNOLOGY

For Less Than \$200

*"I was amazed! Sounds I hadn't heard
in years came back to me!"*

— Don W., Sherman, TX

**How can a hearing aid that costs
less than \$200** be every bit as good as
one that sells for \$2,250 or more?

The answer: Although tremendous strides
have been made in Advanced Hearing Aid
Technology, those cost reductions have
not been passed on to you. Until now...

MDHearingAid® uses the same
kind of Advanced Hearing Aid Technology
incorporated into hearing aids that cost
thousands more at a small fraction
of the price.

Over 300,000 satisfied **MDHearingAid**
customers agree: High-quality,
FDA-registered hearing aids don't
have to cost a fortune. The fact is,
you don't need to spend thousands
for a hearing aid. **MDHearingAid**
is a medical-grade hearing aid
offering sophistication and high
performance, and works right out
of the box with no time-consuming
"adjustment" appointments. You
can contact a licensed hearing
specialist conveniently online or
by phone — even after your
purchase at no cost. No other
company provides such extensive
support. Now that you know...why pay more?

MDHearingAid® >>>

DOCTOR DESIGNED | AUDIOLOGIST TESTED | FDA REGISTERED



Can a Hearing Aid Delay or Prevent Alzheimer's and Dementia?

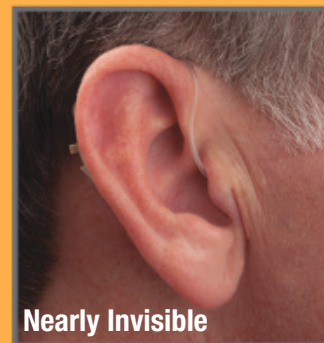
A study by the National Institute on Aging
suggests older individuals with hearing loss are
significantly more likely to develop Alzheimer's
and dementia over time than those who retain their
hearing. They suggest that an intervention — such
as a hearing aid — could delay or prevent this by
improving hearing!

TAKE ADVANTAGE OF OUR 45-DAY RISK-FREE TRIAL!

Hearing is believing and we invite you to try
this nearly invisible hearing aid with no
annoying whistling or background noise for
yourself. If you are not completely satisfied
with your MDHearingAid, return it within 45
days for a **FULL REFUND**.

For the Lowest Price Call
1-800-929-0863

www.GetMDHearingAid200.com



Nearly Invisible

**BUY A PAIR
AND SAVE.**

**BATTERIES
INCLUDED!**
READY TO USE RIGHT
OUT OF THE BOX!

Use Code **JF64**
and get **FREE** Batteries for 1 Year
Plus **FREE** Shipping

Proudly assembled in America!



LETTER FROM TEXAS

evidence of a seasonal roundup camp, a temporary camp pitched by cowboys as they gathered the cattle together. The artifacts had accumulated over the course of a few days or a week when groups of cowboys gathered around the chuck wagon for chow after a long day's work on the range, and then bedded down there for the night. "What we have is the remains of a camp that was in all likelihood used only once by the Square and Compass cowboys," says Hurst.

Not far from the chuck wagon artifacts, on the edge of the gully, the team found a large concentration of .45 Long Colt and .44 Smith & Wesson American cartridges. "At first I thought, 'There was a gunfight here!'" says Hurst. But across the ravine from the cartridges, Cunningham found bullets that matched the cartridges, as well as scattered fragments that likely came from glass bottles. "It wasn't a shootout," he says. "These cowboys were practicing their aim, using the bottles for target practice." The sheer number of cartridges and bullets—more than 200 have been found thus far, and many more likely still lie beneath the soil—suggests this may not have been just a couple of cowboys keeping their aim sharp. "We think this was more



Numerous bullet cartridges, including (left) a .44 Smith & Wesson American and (right) a .45 Long Colt were discovered at the roundup site. They were likely fired during a shooting contest.



Decorative stones are embedded in the cement mortar window frame of a now-derelict house built by the Maxeys, a family who once lived within the boundaries of the U-Lazy-S Ranch.

of a contest," says Hurst. He points out that in the nineteenth century, cowboys on roundup were known to have competed against each other in contests of shooting, roping cattle, and other tricks of the trade. "These really were the precursors to the rodeos you can go to today," says Hurst. "We're looking at a cowboy tradition that turned into something we still celebrate."

After an hour in the air, Bob Macy has outlined his ranch's long history and hovered above most of the sites that the Lubbock Lake Landmark team has excavated. He pilots his helicopter back over the Caprock Escarpment to the ranch headquarters. But one nineteenth-century site had escaped view from the air, and is even difficult to see from the ground. It dates to the period when, despite the Square and Compass Ranch's domination of this landscape, a single family put down roots on the edge of the Llano Estacado, claiming several acres for their own.

While surveying the far northwest corner of the Macy

Ranch, Cunningham had found the remains of a stove and other artifacts that were probably from a small residential site. Eventually, the team found a depression that indicated a dugout dwelling, as well as a dirt embankment that probably shored up a later timber house. No descendants of John Slaughter had a memory of a home in that part of a ranch, so Hurst and his team looked up the site in the records of the Texas General Land Office. They found that, thanks to the terms of the state's often-confusing homestead laws, a family named Maxey had been able to work a farmstead inside the ranch boundaries from the 1880s until the early 1900s.

The Maxeys' presence inside the ranch may have been a source of frustration to the ranchers. Indeed, the family eventually sold their homestead to the U-Lazy-S, and they may have been pressured to do so. They then moved to a now-derelict house they built some five miles from the ranch, which Hurst was able to track down. Its distinguishing feature is a collection of colorful stones embedded in its cement mortar. When he saw it, Hurst immediately thought of two enigmatic collections of stones the archaeologists had found not far from the original Maxey home. These collections consisted of a wide variety of colorful rocks that had evidently been collected in riverbeds far from the house by someone in the Maxey family who prized their beauty. "There was no practical purpose to gather up all these rocks," says Hurst. "The Maxeys were just collecting them because of their aesthetic value." Brief though their time on the ranch was, like so many before them, the Maxeys had left behind evidence of their connection to the vast world of the southern High Plains. ■

Eric A. Powell is deputy editor at ARCHAEOLOGY.



AIA-SCS 120TH JOINT ANNUAL MEETING WELCOMES MORE THAN 2,200 ATTENDEES IN SAN DIEGO



The AIA kicked off 2019 in San Diego with the 120th AIA-SCS Joint Annual Meeting, a gathering of archaeologists, classicists, philologists, and archaeology enthusiasts. This year's meeting included more than 70 sessions, seven workshops, and 12 roundtables. The complete program is available at archaeological.org/meeting/program.

The tone was set by Sarah Parcak's opening night public lecture, *The Rainbow Marshalltown: An Allegory for the Archaeology of the 21st Century*. Parcak, an AIA Trustee and faculty member in the Department of Anthropology at the University of Alabama at Birmingham, is renowned for using satellite remote sensing to locate thousands of previously unknown archaeological sites around the world. In 2016, Parcak built a citizen science platform for archaeology called

GlobalXplorer® (globalxplorer.org) using a \$1 million TED Prize. Through her efforts, Parcak is helping to record, preserve, and protect the world's cultural heritage.

The AIA introduced two new events at this year's meeting. ArchaeoCon was a day of public events headlined by Josh Gates, host and co-executive producer of *Expedition Unknown* on Discovery; Sarah Parcak; and Patrick Hunt, Stanford University archaeologist, author, and explorer. While Gates, Parcak, and Hunt spoke with some of the 300 attendees, several archaeological, historical, and scientific organizations hosted tables of displays and activities. These organizations included Barona Cultural Center & Museum, California Archaeological Site Stewardship Program, Heritage Education Programs, Legion Six Historical Foundation, Partners for Archaeological

Site Stewardship, San Diego County Archaeological Society, Skirball Cultural Center, and the Western Science Center.

Our Trivia Night also debuted in San Diego. Six teams of trivia buffs participated in this first-time event, answering a variety of archaeologically themed questions. These ranged from identifying ancient sites to knowledge of the Indiana Jones movies. ArchaeoCon and Trivia Night broaden the meeting's appeal. Most people who came to ArchaeoCon were not AIA members and had come specifically for this event. This type of event also provides Annual Meeting attendees with opportunities for socializing and networking.

The 120th AIA-SCS Joint Annual Meeting was a fantastic start to 2019. Join us in January 2020 when the meeting moves to Washington, D.C.



DISPATCHES

FROM THE AIA

EXCAVATE • EDUCATE • ADVOCATE

AIA AWARD WINNERS



The 2019 AIA Award Winners

AIA Award Winners

- Gold Medal Award for Distinguished Archaeological Achievement: Curtis Runnels, Boston University
- Pomerance Award for Scientific Contributions to Archaeology: Robert E.M. Hedges, University of Oxford
- Martha and Artemis Joukowsky Distinguished Service Award: John R. Hale, University of Louisville
- Outstanding Public Service Award: Laurie Rush, Cultural Resources Manager and Army Archaeologist, Fort Drum, N.Y.
- Excellence in Undergraduate Teaching Award: Jennifer Ramsay, College at Brockport, SUNY
- James R. Wiseman Book Award: John M. Marston, Boston University
- Felicia A. Holton Book Award: Timothy Matney, University of Akron
- Outstanding Work in Digital Archaeology Award: The Open Digital Archaeology Textbook Environment
- Graduate Student Paper Award: Heba Abdelsalam, ARCE

At the awards ceremony, the AIA recognized Trustee Emerita Norma Kershaw, Trustee Emeritus Charles La Follette, and Trustee Emeritus Brian Heidtke. Only three Trustees hold this status. The AIA is proud to honor these extraordinary individuals for their steadfast support of and exemplary service to the AIA.

123RD SEASON OF THE AIA LECTURE PROGRAM CONTINUES INTO 2019

We are midway through the 123rd Lecture Program. One of the highlights thus far has been the establishment of a new endowed lecture by Vice President for Societies, Ann Santen, a former Society Trustee and long-time supporter of the AIA. This endowment covers not only the traditional lecture format, but also classroom presentations, interactive communication through technology, and any other format that helps to illuminate the past. The inaugural Ann Santen Endowed Lecture took place in November 2018, when Bettina Arnold, Professor of Anthropology at the University of Wisconsin–Milwaukee, presented *Belted Ladies and Dagger Men: Technology Brings European Iron Age Back to Life* to the AIA Cincinnati Society. To learn more about the Lecture Program, visit archaeological.org/lectures. To learn how you can endow a lecture, visit archaeological.org/giving/endowments.

INTERNATIONAL ARCHAEOLOGY DAY



International Archaeology Day (IAD), the yearly global celebration of archaeology coordinated by the AIA, will take place on October 19, 2019. IAD continued its unprecedented growth in 2018 with more than 900 events in 24 countries attended by more than 200,000 people. This level

of participation by both collaborating organizations and interested attendees is a testament to the popularity of archaeology and the need for public events like this. Join us for IAD 2019 by attending an event or becoming a collaborating organization and hosting one. Read more at archaeologyday.org.

“A YEAR OF ARCHAEOLOGY” CALENDAR STILL AVAILABLE

It's not too late to purchase the AIA's 2019 calendar, “A Year of Archaeology,” which features stunning archaeological images selected from our annual photo contest. Proceeds support the AIA's Site Preservation Program, which has awarded grants to help preserve and protect 29 sites on five continents. Calendars are available by visiting archaeological.org/calendar.

Travel • Support • Learn

AIA Tours.org



ARCHAEOLOGICAL INSTITUTE
OF AMERICA TOURS

Travel with expert, personable AIA lecturers & fellow AIA supporters

"The overall experience was terrific. I have been sold on small group trips with experts for some time now and this met my expectations."

- Bernice, MD

"Like-minded travel companions, small group size, the always interesting commentary and lectures...I've been traveling overseas almost every year since 1988 and count this as the best trip ever."

- Patricia, PA

OMAN & ZANZIBAR

October 5-23, 2019 (19 days | 12 guests)
with anthropologist & architectural historian
Trevor Marchand

NORTHERN ITALY

WITH SLOVENIA & CROATIA
September 4-17, 2019 (14 days | 15 guests)
with archaeologist Patrick Hunt

Featured 2019 AIA Tours

IRELAND'S WILD ATLANTIC WAY

June 9-23, 2019 (15 days | 12 guests)
with archaeologist Stephen Mandal



TREASURES OF THE MEDITERRANEAN WORLD: A FAMILY LEARNING ADVENTURE

July 13-23, 2019 (11-day voyage)
with archaeologist Kathleen Lynch



ESSENTIAL PERU

A BUDGET-PRICED PROGRAM

July 20-31, 2019 (12 days | 17 guests)
with archaeologist & geographer James Kus



HUMAN ORIGINS IN SOUTH AFRICA

Aug. 31-Sept. 14, 2019 (15 days | 20 guests)
with paleoanthropologist Ian Tattersall



TEMPLES & PALACES OF NORTHERN INDIA

November 6-23, 2019 (18 days | 12 guests)
with art historian Kirtana Thangavelu



VIETNAM, CAMBODIA & THE MEKONG RIVER

December 2-15, 2019 (14 days | 12 suites)
with archaeologist Joyce White

call: 800-748-6262 • website: www.aiatours.org • email: aia@studytours.org • follow: on Facebook @aiatours.org

Being able to connect an archaeological artifact with a specific person mentioned in historical sources is relatively unusual—when the person was a woman, it is even more so. This recently discovered medieval seal stamp bears the name of Elisabeth Buggesdatter, a woman of high social status who was well known in medieval Denmark. Her name is written in Old Danish and surrounds what appears to be a decorative monogram. Elisabeth’s father, Sir Niels Bugge of Hald, was one of Jutland’s wealthiest men, and her husband was an influential German nobleman named Godskalk Skarpenberg. Bugge led an unsuccessful revolt against the Danish king Valdemar IV Atterdag (r. 1340–1375) in 1358. For centuries after his murder at the hands of the king’s henchmen, Bugge was celebrated as a national hero in song and verse.

Elisabeth was a powerful woman in her own right, who, like other influential women of her social class, is recorded as having spoken at the Thing, medieval Denmark’s governing assembly. Notably, says Marie Laursen, a curator at the National Museum of Denmark, where the seal is being studied, Elisabeth chose to call herself “Buggesdatter” or “daughter of Bugge,” after her father’s family name, instead of the more usual “Nielsdatter” or “daughter of Niels.” “I think this was definitely an issue of branding and wanting to be closely associated with her father,” says Laursen. Elisabeth is also known to have bought and sold several estates, for which she needed a personal seal to certify the necessary legal documents. Because these seals were so important, they were usually buried with the person upon their death. Losing one’s seal, says Laursen, “could have led to fraud, or even a kind of identity theft.” She thinks Elisabeth must have dropped hers accidentally where it was found.

WHAT IS IT
Seal stamp
CULTURE
Medieval
DATE
14th century
MATERIAL
Bronze
FOUND
Hodde, Western Jutland, Denmark
DIMENSIONS
1.1 inches in diameter, 0.78 inches thick



Here's to you for loving what you do.

Nationwide® salutes your commitment and passion for being a member of AIA.

At Nationwide, we're passionate about making a difference, too. It's just one way we prove that we're more than a business. Another way is helping our members save money on their car insurance.

Learn more about our partnership and special discounts.

nationwide.com/AIA | Local Agent | 1-886-688-9144

Nationwide Insurance has made a financial contribution to this organization in return for the opportunity to market products and services to its members or customers.

Products underwritten by Nationwide Mutual Insurance Company and Affiliated Companies. Home Office: Columbus, OH 43215. Subject to underwriting guidelines, review, and approval. Products and discounts not available to all persons in all states. Nationwide and the Nationwide N and Eagle are service marks of Nationwide Mutual Insurance Company. © 2015 Nationwide AFR-0230AO (06/15)

